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Vesuvius, from the sea.

SKETCHES

OF

VESUVIUS

WITH SHORT ACCOUNTS OF ITS

PRINCIPAL ERUPTIONS,

FROM

THE COMMENCEMENT OF THE CHRISTIAN ERA

TO THE PRESENT TIME.

BY

JOHN AULDJO ESQ. F. G. S.

CORRESP. MEMBER OF THE SOC. REAL BORBON. AND OF THE ACCADEM. PONTANIANA, NAPLES.

» — a hill — whose grisly top »
» Belched fire and rolling smoke; the rest entire »
» Shone with a glossy scurf; »

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Olschki . 53

TO

HIS ROYAL HIGHNESS

CHARLES, PRINCE OF CAPUA,

etc. etc. etc.

THESE SKETCHES

ARE,

BY GRACIOUS PERMISSION,

RESPECTFULLY DEDICATED

BY

HIS ROYAL HIGHNESS'S

MOST OBEDIENT,
HUMBLE SERVANT,
JOHN AULDJO.

★

PREFACE.

In publishing the following pages I do not pretend to offer original matter; but, merely, an abstract of a great deal that has been written about Vesuvius; and if I should excite in travellers, who may visit that celebrated Volcano, an interest in its historic and topographic details, and prepare them to receive and bear away impressions that may be instructive and lasting, I shall have obtained the object I have, principally, had in view.

VESUVIUS.

" *I climb a hill of ashes at whose top*
A gorge descending leads into thy home
Great Fire! where, 'mid thy swarthy realms sublime,
Under a canopy of surging clouds,
On thy red throne exalted, terrible,
Thou art sole master; and supreme hast been
For ages, unopposed. "

Among the enchanting features of the far-famed scenery around the Bay of Naples, the favoured region of poets, none is more attractive than Vesuvius, " the burning mountain, " which has allured the curious and learned, in all ages and from all countries.

This mountain has two summits; they are the present cone of Vesuvius and the Monte Somma: they stand on a common base, bounded on the north and east, by the plain of the Terra di Lavoro, which separates it from the Appenines; on the south it is washed by the sea; and on the west it may be said to unite with part of

the acclivity on which Naples is built. In fact the division between the extreme western slope of the Somma and the eastern end of the hill called Poggio Reale of Naples, is so small, that it can scarcely be considered as a physical separation.

The ridge of the Somma forms a semicircle, the curve of which lies north east, its two extremities stretching out south west, and it is a curious fact, ascertained by Visconti, that the diameter drawn from its western point, near the Hermitage, to its eastern termination above Mauro, passes exactly through the centre of the present crater. The front of the Somma, which faces the south west and the cone of Vesuvius, is almost perpendicular; but the side towards the north is a sloping plain, cut, lengthwise, by deep ravines and covered with vineyards; except a few hundred feet near the summit, which are clothed with small, chesnut and oak trees.

A narrow valley (called the Atrio del Cavallo on the west, and the Canale dell' Arena on the north,) divides Somma from the cone of Vesuvius. The lava, which sometimes flows from the north side of the cone, the scoria and ashes that are ejected or are washed down from it into this valley, raise the level, and probably will some day fill it up; and then that side of the

cone, united with the ridge of the Somma will become part of the flank of the mountain.

The cone of Vesuvius, in appearance a mass of ashes, is truncated from N. E. to S. W. and rests, on the north west, upon the Atrio del Cavallo; on the north east, upon the Canale dell' Arena; and towards the south, upon the Pedementina; extending its flank down to the sea and forming an inclined plane from its vertex to its base. The slope, from the Pedementina and the Atrio del Cavallo, is regular and is covered with vineyards and gardens: it is broken only by the Vocoli, or small cones formed during the eruption of 1760, by the picturesque hill on which the convent of the Camaldoli is built, and by prominences raised on the lava of the eruption of 1794 near the Piano delle Ginestre. On the north west side, it is cut by two large ravines, separated from each other by the ridge of the Canteroni, on the summit of which is situated the hermitage of Saint Januarius or San Salvatore. The ravine, on the north, is the Fosso Faraone, running N. W. and S. E. that on the south is the Fosso Grande of which the direction is west and east. The lower parts of the mountain are studded with towns, villages, and palaces, that rise among vineyards and gardens, the property of men who forget their dan-

ger while seeking to derive wealth from the fertility of its soil, though there has not been a period of a hundred years, in which some part of the lands around the base of Vesuvius has not been ruined by earthquakes, destroyed by currents of lava, or covered with ashes. But what is there with which man will not familiarize himself? The eruption over, the inhabitants return to build their houses on the same spot where terrible experience ought to have made them dread the risk of being buried by some future eruption. *

The town of Resina is the place from which those who visit the crater, are commonly conducted to its summit, and the usual route from that town leads, very nearly in a straight line, towards the north side of the cone, until it reaches the Piano delle Ginestre, where it turns off to the left.

The "Piano" once adorned with evergreen shrubs, bushes, and broom, flowering throughout the year and wearing the semblance of eternal spring, now presents only a desolate expanse, wherein nothing is seen, but the scorious surfaces of vast streams of lava which, in pouring down from the cone, have intersected and co-

* For much of this description of Vesuvius I am indebted to Breislak: (Topografia fisica della Campania. Cap. IV. 7.).

vered each other, have been heaped up in confused masses and hillocks, or extended in broad and irregular ridges.

The time occupied in getting hither, is about an hour, and the road, passing between vineyards protected by stone walls or mud banks, (*anacera*) is wholly uninteresting, except at a few spots where one obtains some beautiful glimpses of Naples and the intervening country, through breaks in the foliage of the thickly planted vines.

I have generally preferred, and I strongly advise others, to make the ascent in the direction of the Fosso Grande, by a road, that joins the one already described, on the Piano above mentioned, immediately before it arrives at the great ridge or hill of the Canteroni. This course lengthens the time required for the ascent by about half an hour, but the path is less difficult and steep, and is, in every respect, better than the other, except a few yards of the latter part of it, which must be performed on foot. It has the great advantage of a constant change of scenery and, at the same time, it exhibits a section of the mountain that lays its structure open to the view, which cannot fail to afford both pleasure and instruction even to unscientific admirers of Nature.

At a short distance from Resina, this second route turns off, to the left, from the line of the first, and, passing between vineyards and orchards the trees of which generally extend their boughs over the pathway, making in many places a shady avenue, reaches some streams of lava which came down, through the Fosso Grande, and ran to S^{t}. Jorio in 1767. It crosses these close to the small chapel of S^{t}. Vito built near the site of another that was destroyed by one branch of the lava of the above mentioned eruption, and it is again continued under the shade of large trees, until it comes upon the principal stream of 1767: proceeding then between its two walls or ridges, of which it follows the direction, it soon enters the Fosso Grande, where it approaches a small cliff of old lava, almost concealed by the wild fig tree, by ivy and various beautiful evergreens that hang about it.

At some distance forward, a bold precipice of tufo and lapillo rises on the left hand, and from the base of it a gentle slope, covered with vines, extends to the road. On the right, various superincumbent beds of ancient lava, with narrow intervening strata of sand, present a perpendicular front, the brow of which is clothed with trees and shrubs.

Such is the precipice of lava represented in

Beds of Antient Lava in the Fosso Grande.

Sketched with the perspectograph by J. Auldjo Esqr.

Drawn on Stone by F. Wenzel

THE HERMITAGE

On the road leading to the Cone of Vesuvius

Printed by A. Lechaux.

the accompanying sketch; which though the most picturesque is not the highest part of the line of precipices that compose the right bank of the Fosso, throughout its whole length.

The path leads, next, to a very steep ascent over the hard surface of an old stream of lava; a few minutes suffice to climb it — when the view suddenly opens; the whole plain of the Ginestre appears, with the black cone rising at its further end; and the eye which, not many moments before, dwelt with interest on the effect of ancient eruptions, now regards with astonishment, the work of desolation, produced by those of recent occurrence.

The route here unites with the common one; quits the lava and ascends towards the Hermitage, through a winding cleft in the mass of lapillo, of which the ridge of the Canteroni is principally formed. Before arriving at the upper part of it, we have a magnificent prospect which extends over the great and richly wooded plain of the Campo Felice, stretching one way as far as to the sea, and another to the chain of the Appenines behind Caserta.

The Hermitage of San Salvatore (S^{t}. Januarius;) is situated on a small, flat space at the western extremity of the ridge of the Canteroni; I have in vain endeavoured to ascertain at what

period it was erected; but it was, probably, immediately after the great eruption of 1631. The building contains a chapel, and a few rooms for the use of the monk or hermit who resides there throughout the year, and it, also, of late, has been used as a post for the police who protect it, as well as the persons who ascend the cone.

Leaving the Hermitage to the left, the road lies along the highest part of the ridge, at the end of whose verdant bank, the ashy cone rears itself aloft, with white smoke rising in opaque masses from its centre and curling high into the air. On one side the view extends over the wild, barren field of lava, and, on the other, is intercepted by the termination of the Somma, covered with brushwood and small trees and sloping into the Fosso Faraone. A wooden cross has been erected at the eastern extremity of the ridge, and once in the year, as also in all great eruptions, the assistance of the Patron Saint of Naples is here implored to protect the Hermitage from the fury of the Volcano.

Below this point, in the Fosso to the left, once existed the little chapel of la Vetrana, which was destroyed by the eruption of 1786. when the lava poured over a precipice of sixty feet, near the building, in a cascade of liquid fire.

Sketched with the perspectograph by.

Sketched with the perspectograph by J. Auldjo Esqr.

Drawn on Stone by F. Wenzel.

THE CONE OF VESUVIUS,

From the path behind the Hermitage

Printed by A. Ledoux

I. Auldjo's Stone by F. Wenzel.

A short descent leads down to the Atrio del Cavallo, * or plain of lava, and the road, winding among rude, unshapen masses towards a spot at the base of the cone, whence it is necessary to climb, on foot, its steep sandy side, lies in a channel, between two streams of lava, the one on the left having issued in the eruption of 1821. and that on the right, in 1822.

On the left, at a short distance from this spot, are two small cones, the only remaining ones of six that were thrown up in the eruption of 1821. The greatest of these has been named after Coutrel; an unfortunate french suicide who, while it was in a state of activity, threw himself into it, on the 16th January in that year.

The view from this point is beautiful, the

* The name of Atrio del Cavallo, was given to all this part of the mountain, long before the 16th century; because, "in those days, people always came thus far on horseback, and it served as pasture ground for their horses, as until the year 1631 it produced herbage and trees". Since that period it has been so often covered with lava and ashes that it has never been capable of cultivation.

A plain surrounds the base of the cone, and that part of it which bears the name of Atrio, extends from the ridge of the Canteroni and the western end of Somma, to a point in a direct line above the convent of Camaldoli. From this, to the eastern extremity of Somma it is called the Pedementina, and thence between Somma and the cone, until it joins the Atrio, it is known by the name of the Canale dell'Arena.

rough, dark foreground of the lava, contrasting in a singular manner with the green bank of the Canteroni, the rich plain and the deep blue sea far beneath; and, the sloping base of the mountain being lost to the eye, they appear, particularly the latter, to come in close under, as 'twere to the foot of an immense perpendicular cliff.

It takes something more than half an hour to climb up the steep, zig-zag path that leads to the top of the cone; and the greatest difficulty met with in the ascent arises from the uncertain footing which the ashes afford.

On the summit a scene is presented, which almost baffles description. The field of lava in the interior of the crater, enclosed within a lofty and irregular bank, might be likened to a lake, whose agitated waves had been suddenly petrified; and, in many respects, it resembles the *mers de glace*, or level glaciers of Switzerland; although in its origin and materials so very different. It is intersected by numberless crevices, some deep and wide, others long and shallow. Here one sees masses curled and twisted like cables, there large slabs piled up in various angles againt each other, in one part a wide table or platform, in another, a narrow stream, the ripples of which, in pushing each other for-

Sketched with the perspectograph by

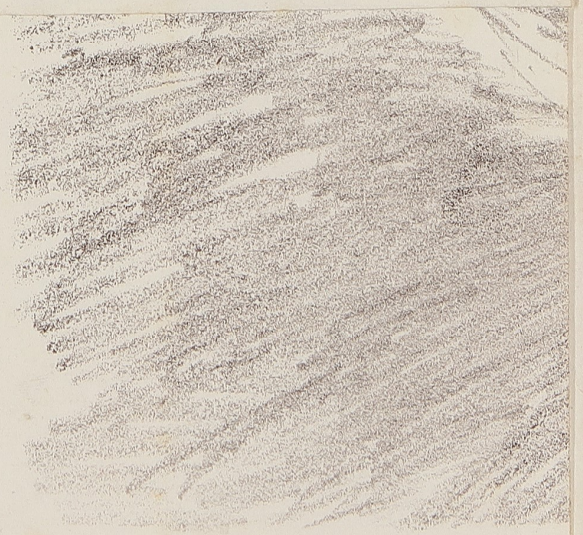
Sketched with the perspectograph by J. Aulelio Esq.re

Drawn on Stone by F. Wenzel

VIEW OF NAPLES.

From the Atrio del Cavallo, at the base of the Cone of Vesuvius.

Printed by A. Ledoux.



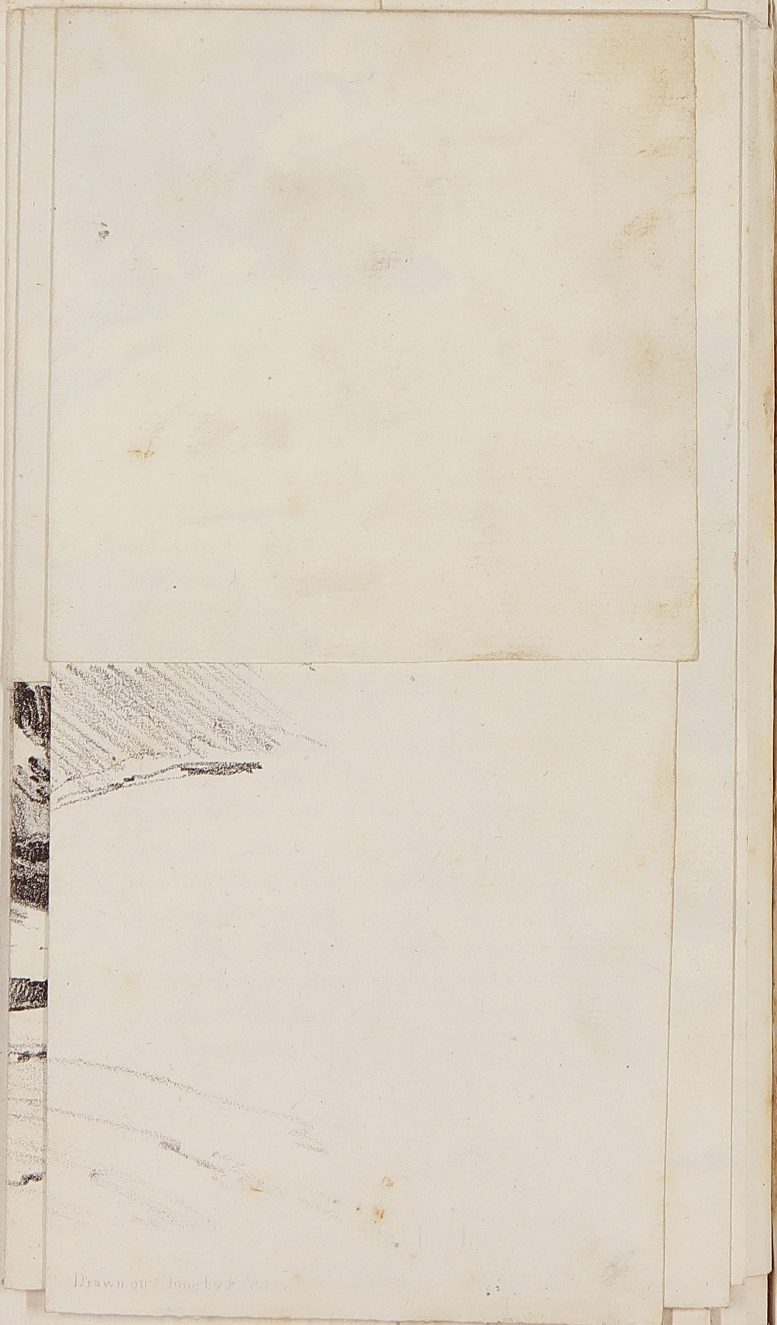
Sketched with the persp

THE CRATER OF VESUVIUS.

As it appeared on the 18th of September 1831 from the SW of the Cone.

Printed by A. Lemaire

Sketched with the pantograph by J. Arthur Esqr.



ward, have maintained their wavy form for a great distance. In the sea of ice, the white, dazzling surface is relieved by beautiful tints and various shades of blue and green; in its simulachre of stone, the bright yellow and red of the compounds of sulphur and the metals interspersed with the pure white of the muriate of soda, afford a pleasing contrast to the brown and melancholy hue of the lava.

A small, black cone, formed of scoria ejected from its mouth, rises from the lava a little to the north east of the centre of the crater; and from a cavity in it, volumes of smoke roll up into the air, sometimes accompanied by a cloud of small, fine sand, and often, by showers of red-hot molten lava, which, shot aloft, soon scatter and fall in all directions; a part in large masses like cannon balls, a part in small, perfect spheroids or in lumps that, striking on the lava, dash out into long strings of scoria.

Two terraces of lava extend across the crater from the southern side of the small cone and upon them several conical fumaroli, lately thrown up, constantly ejected vapour which gushed forth with a hissing noise. One of these had been rent asunder, by some violent convulsion in the crater. One half, which had fallen down, presented a confused heap of lava in cubical

blocks; but the part that remained standing, exhibited a structure like that of columnar basalt, and the whole was covered with beautiful crystallizations of the salts of copper and iron, in various shades of green.

The shortest way to get to that part of the crater which is above Bosco Reale, the lowest point of the circumference, is to proceed across the lava; yet the vapour of the sulphuric and muriatic acids, is sometimes so strong that it can be passed, in safety, only by hurrying over the spot where it is evolved, and taking the precaution to cover the mouth with a handkerchief.

Without venturing on the lava no idea can be formed of the beautiful combinations of colours of the sulphur and metallic salts, deposited during the continual sublimation effected in that great laboratory, of the fantastic shapes into which the lava is moulded in oozing out from the crevices and mouths of its natural furnaces, of the manner in which the fumaroli are heaped up, and how the vapour issues from them. In short, much that is interesting, curious, and instructive, is only to be seen by going to the centre, and by a close inspection of the crater; the more minute objects there discovered being lost in the distant, though beautiful view obtained from any part of the edge.

Sept 18th 1831.

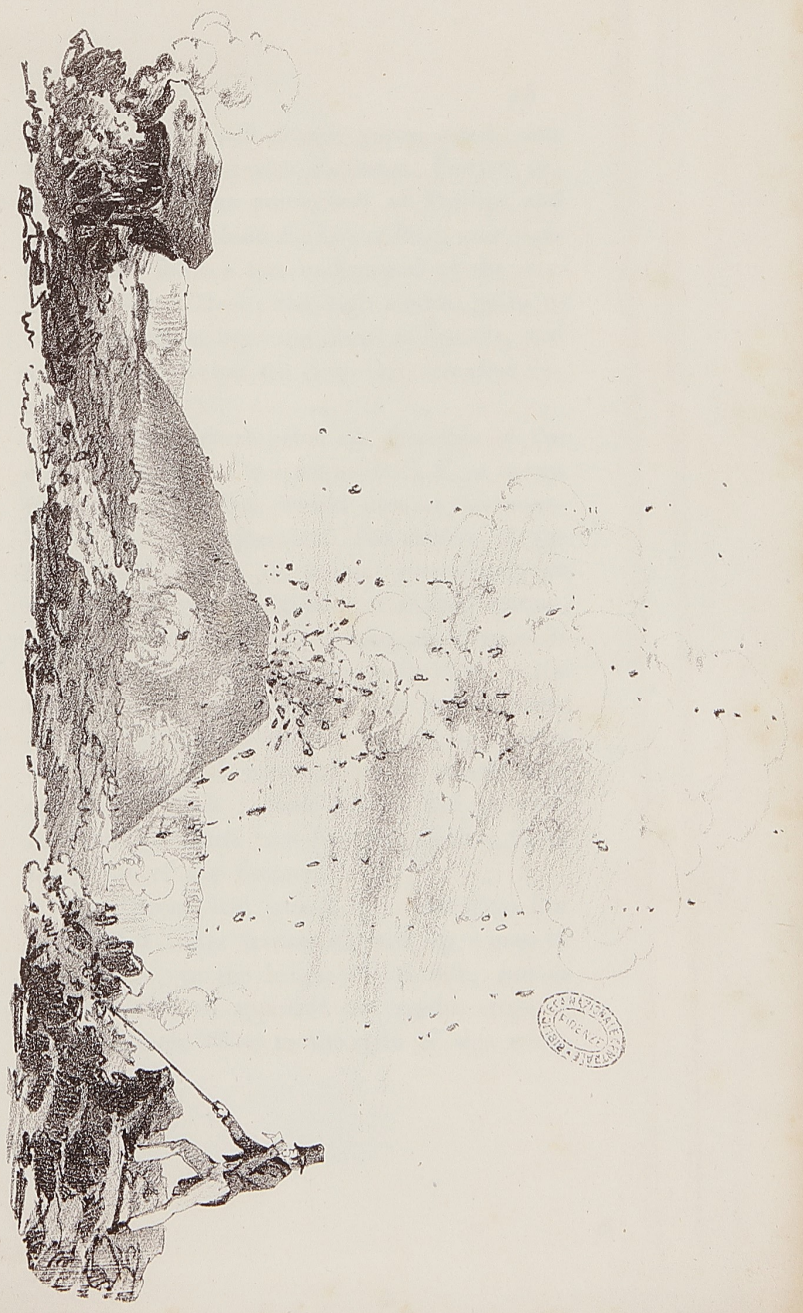
Ruins of a Small Cone near the centre of the Crater.

Until September, when the lava rose to its present height, it was necessary to make the circuit of half the cone to reach the lowest part already described, that over Bosco Reale, the only point whence it was possible to go down to the lava at the bottom of the cavity; and the descent was accomplished by wading down a steep, narrow slope of loose, hot ashes, into which the leg sank up to the knee at every step, always causing annoyance, and often terror to those, who engaged in the hazardous exploit of descending into the crater. The depth at this part, in May 1830 was seventy feet; by December following, it had decreased to fifty, and on the 1st of last September, it was only ten.

The path to this point lies along the tortuous and uneven ledge which forms the summit of the southern side of the cone, and, being neither difficult nor dangerous, is generally chosen in preference to crossing the lava, particularly after dark. The view from the highest peak, is perhaps one of the most beautiful in the world; the height of the mountain not being so great that the features of the fairy land over which the eye roves, are either lost or too much diminished.

To the S. E. the island of Capri rises from the bosom of the ocean, like a huge fortress protecting the entrance of the bay; on turning to the

left, one sees the Apennines, embosoming Massa and the orange covered platform of Sorrento, extend their dark line along the shore as far as Castell' amare, over which towers S^{t}. Angelo, their highest point. Thence, their lofty range, dividing the valley of the Sarno from the bay of Salerno, runs up into the country, until it makes a bend, to the left, and forms a distant semicircle round Vesuvius and the plain of Nola which spreads out between them. Behind Caserta, these picturesque mountains hide their heads in the clouds, though, at times, their grey, and often snow-covered summits, sparkling with the rays of the sun, are beautifully defined through the clear atmosphere. Monte Circello and the hills about Gaeta, terminate the line, again lost in the sea, but enclosing the luxuriant Campo Felice, with the numberless towns scattered over its surface. The whole tract, fenced in by this line of mountains and lying between it and the sea, is of volcanic origin, and to it the ancients gave the name of Campi Phlegræi. The plain is perfectly level, till it reaches the acclivity on which the city of Naples rises, terrace above terrace, each built up of palaces and churches, thickly crowded together, and crowned by the massive walls of the castle of St Elmo. Behind these is a semicircular hill; splendid and verdant, whereon,



The small cone, from the S.E. summit of the great cone

villas, gardens, and orange groves stand, one above the other in rich confusion. Farther on, the Camaldoli, the promontory of Posilipo and the mountains behind the bay of Baia, raise their heads and form a fine background to the city. To the left of these, the high conical point of Ischia, frowning over the island of Procida, and a long line of blue sea close this extensive Panorama.

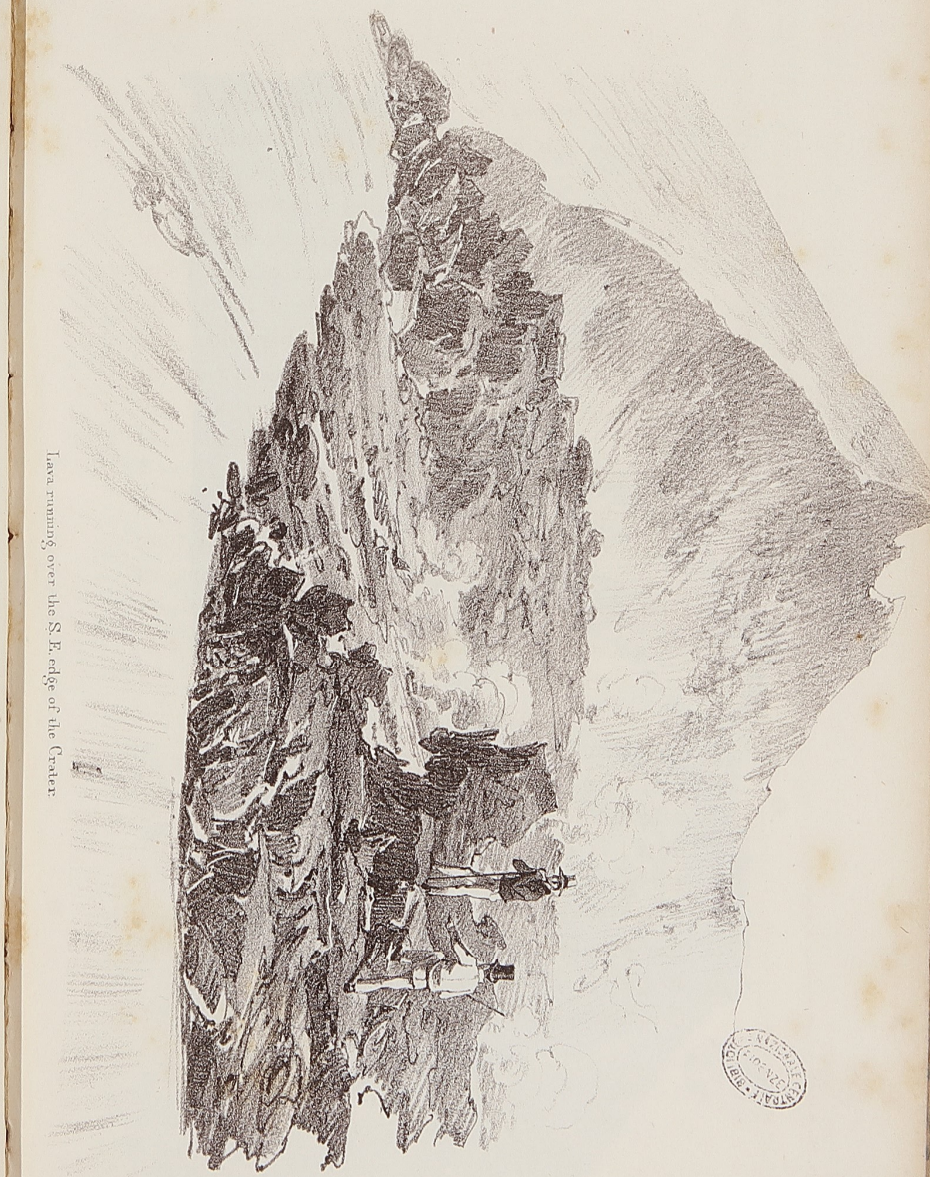
From the highest point on this side of the crater, the descent is rapid to the S. E. or lowest part, where the lava flowed over on the morning of the 18th September. The surface of the field of lava within the crater, intersected, on that day, by various streams of molten matter, presented a beautiful and striking appearance. It was almost impossible to approach close to the running lava, on account of the intense heat; but I succeeded in getting sufficiently near to one stream, and was enabled to remain long enough, to push a stick into it and ascertain its fluidity, which was like that of glass, when taken out of the furnace.

One current had passed over the edge but had cooled, after having thrown up a mass in large flakes, to the height of 15 feet, but so disposed that it appeared in regular steps of five feet each. Close to the right of this mass,

a wide stream approached the edge and threatened to run over, but that also cooled. However, soon after, a third, narrower and more to the right than the others, flowed rapidly towards that part of the circumference where it begins to rise in the direction of the Palo, and in running heaped up a line of black scoria on each side, as the ploughshare does the mould through which it cuts. The accompanying sketches shew the appearance of this part of the crater, about two o 'clock in the afternoon of the 18th when the last stream had just attained the edge.

During the whole of the day the small cone was in great activity, and the very large masses of lava and scoria ejected from it, were thrown to a great height. The smoke was very thick and dark, being loaden with fine black sand, which fell on the Palo and that part of the cone, in great quantity.

The inequality of the south side, and the ascent to the Palo, the highest point of Vesuvius, is equally steep and fatiguing, whether made on this side, or on the other. The view from it, is not finer nor more extensive than the one I have described and the only advantage it has, is that of presenting more distinctly, the Somma and the Canale dell'Arena, which



Lava running over the S.E. edge of the Crater.

Sept. 18th 1851

Lava on a level with the S.E. edge of the Crater

Streams of Lava on the S.E. side of the Cone

Sep. 20th 1831

latter is a flat, semicircular plain, entirely covered with fine ashes, and much resembling the bed of a lake, the waters of which have been dried up.

On the evening of the 20th three streams of boiling lava, separated from each other by a line of scoria cooled into blocks and flakes and closely cemented together by lava, flowed down the exterior of the cone. When it became dark the appearance of these currents was exceedingly curious, and in the accompanying sketch I have endeavoured to represent their picturesque effect. During the night a column of melted scoria of a bright red was thrown, from the small cone, every half second, high into the air, accompanied by a white smoke, tinted, sometimes with a deep scarlet colour, sometimes with delicate pink; both caused by the reflection of the fire within the crater.

On the 23rd the lava flowed out, in several places, near the former streams, and uniting with them, advanced to the foot of the great cone. It went thence in an easterly direction across the Pedementina, but, afterwards, changed its course, turning to the right, and, winding for a short distance round the base, formed a smoking track on its south eastern side. The whole line resembled fresh mould piled up in

masses, here in long strips, there in small hillocks; smoke arose from the whole; and occasionally, a short line of red peeped out from the dark, dull heap of scoria. Some of these were remarkable: the lava, in flowing along, had thrown up, on either side, a thin perpendicular wall of scoria, and between the two banks passed the stream which issued from under a perfect arch formed by masses of scoria, and, having run twenty or thirty feet, entered under another and disappeared among large heaps of the same matter. Some idea may be formed of the singularity of one of the channels, from the accompanying illustration.

Satisfied with viewing the curious features of the crater, it will be well to await the close of day, ere one commences the descent, and, if the weather has been fine or if the atmosphere is clear, few will quit the spot without beholding, a picture of surpassing splendour; for lovely indeed is the prospect when the scenery, "matchless in beauty," is illuminated by the rays of the setting sun, which clothe it with lucid softness or dazzling brilliancy! Often, as the radiant orb gradually approaches the horizon, and sinks into the sea, a dark mass of clouds descends over it, as 'twere a pall which, for a few moments, shrouds its departing glory; but soon, clouds

A channel formed by two walls of lava, with the lava flowing along it.

and mountains, plains, trees and towns, in short every thing, becomes saturated with dark orange tints, or the vivid ones of the ruby, or those of the delicate rose; the bright blue sea, from reflected lustre, showing like a flood of liquid gold, its burnished waves rippling beneath the fluttering land-breeze which floats gently from the shore, while, here and there, some boat or speronaro, with fan-like sails, pursuing its solitary course, casts a faint shadow on the bright expanse. Slowly, almost imperceptibly, the golden hue, the roseate dye fade away, and the veil of darkness, with its leaden gloom, descends upon the scene.

Night closes in suddenly, so that torches are necessary to light one downward; and, instead of following the winding path along which the ascent was made, a track is taken that leads in a straight line from the summit of the cone to the base, near the blocks of lava where the mules are left: * the descent is accomplished in a few minutes; for, as the ashes are deep and no large stones are in the way, it is both a safe and easy process to run down.

The appearance produced by the glare of the torches over the dusky and desolate piles of lava

* These blocks of lava were thrown out from the crater in the month of August 1779.

among which the road lies, is wild, singular and romantic, particularly so, when the party is large and furnished with many flambeaux: the beauty of the scene is much increased by the intermixture of the dark cloaks of the men, with the party coloured shawls and dresses of the women, the medley of horses, asses, mules, and their uncouth drivers, with torch-bearers, *facchini* carrying baskets on their heads and half clothed stragglers who, in this idle country, commonly present themselves on every excursion, in which a number of persons are assembled. The effect of the motley groups, hallooing and screaming, as moving forward, they wind through the deep cut in the hill of the Canteroni, below the Hermitage, is equally strange and picturesque.

How different the feeling of the traveller when the moon, in some calm evening, throws her silvery light over the rugged scene, faintly illuminating the mountain, the plain and the glassy sea, but scarcely disclosing the islands or the range of the Apennines, except as shadows in the distance! Slowly aud silently, attended by his mule driver or guide, he proceeds downwards, afraid almost to whisper lest he should disturb the stillness which reigns around, and break the charm of this impressive solitude.

If the descent is made in the day time, the route may be changed, with much advantage, by going down through the Fosso Faraone and the Nocelle. This will occupy a little more than two hours from the Hermitage, and will present a very different, but still a beautiful aspect of the mountain and the plain that skirts its base.

The path leads from the north side of the platform of San Salvatore, and winds among the oak plantation till it arrives in the Fosso Vetrana, on a narrow space, to the very edge of which the overrunning thickets descend, between the Somma and the Canteroni. It thence passes through a narrow gorge for a few paces, when the eye, unexpectedly discovers the lower parts of the mountain, the ridge of the Somma sloping to S^{t}. Sebastian, and the plain with the numerous dells, or water courses, which intersect it, at a depth of 400 feet below the pass. Every part is completely covered with stunted trees, the autumnal clothing of which casts a rich, brown hue over the surface, and gives an aged and forest like appearance to the whole.

The road continues along the brink of a precipice which overhangs a considerable space of the slope, and, gradually descending the Pietra di Cautril, crosses a path which runs from

the Hermitage to S^{t}. Sebastian. At this point the view is very lovely: the Canteroni being covered with myrtles and other evergreens, growing among large, detached and craggy masses of tufo or of lava, have a bold and rocky appearance, and the Somma, overspread with its dun and leafy garment and tinted by the bright rays of the sun, affords a diversity of colour and a profusion of light and shadow, which heighten the picture into magnificent effect.

The path * then enters a cleft eight feet wide and twenty feet high, in the solid tufo or sand, and continues, for some distance, between its perpendicular walls, till a break occurs in the southern side, which discloses Naples, hanging as it were in the air; for the intervening country is concealed from view. The path then becomes more narrow, its sides rise higher, and instead of being straight, it follows a serpentine course. Vines, fruit trees and shrubs hang over the cleft, almost shutting out the light, and its edges are fringed by creeping plants and brambles. After ten minutes' walk in this cold damp passage, one comes out into sunshine and into the open vineyards, through which a good road leads till it arrives at the edge of a deep ra-

* The name given to this part of the route is the Cupa delle Nocelle.

vine, the depth of which is, at least, 80 or 90 feet; its steep sides are here and there tufted with enormous aloes or overgrown with ivy and luxuriant bushes, and at its bottom rolls a stream, which, after rain, becomes a foaming torrent, as it receives a great deal of the water which descends on this side of the mountain. The road winds along the southern side of this dell and enters another pass in the tufo, but soon issues again and joins the high road from Portici to S^{t}. Sebastian. Here it turns to the left and proceeds between stone walls and hedges enclosing fruit gardens and vineyards, till it crosses a stream of the lava of 1767, the principal one described in the ascent through the Fosso Grande. It then again enters a cultivated district, and after several turns, now to the right, now to the left, arrives at an isolated mass of lava on which a cross is erected, whence it immediately passes under a bridge that connects the Royal Grounds, and, intersecting them, enters Resina on the northern side of the church; the opposite side to that which was passed on quitting the town.

It may be proper to observe that several parts of this road, especially near the Pietra di Cautril, are in bad condition, steep, rugged and

unsafe, unless passed on foot; but the rest of it is as good as any of the other routes.

Having thus proceeded from the bottom to the top, and again, from the summit to the base of this celebrated mountain, and having described, in the order in which they present themselves, the most striking parts of its western or more frequented side, it remains for me to hope that my sketches, however faint and imperfect they may be, will, nevertheless, serve as a general outline of Vesuvius to strangers, and induce those who have the opportunity, to fill them up, by personal inspection, to the variety, magnitude, and sublimity of their original.

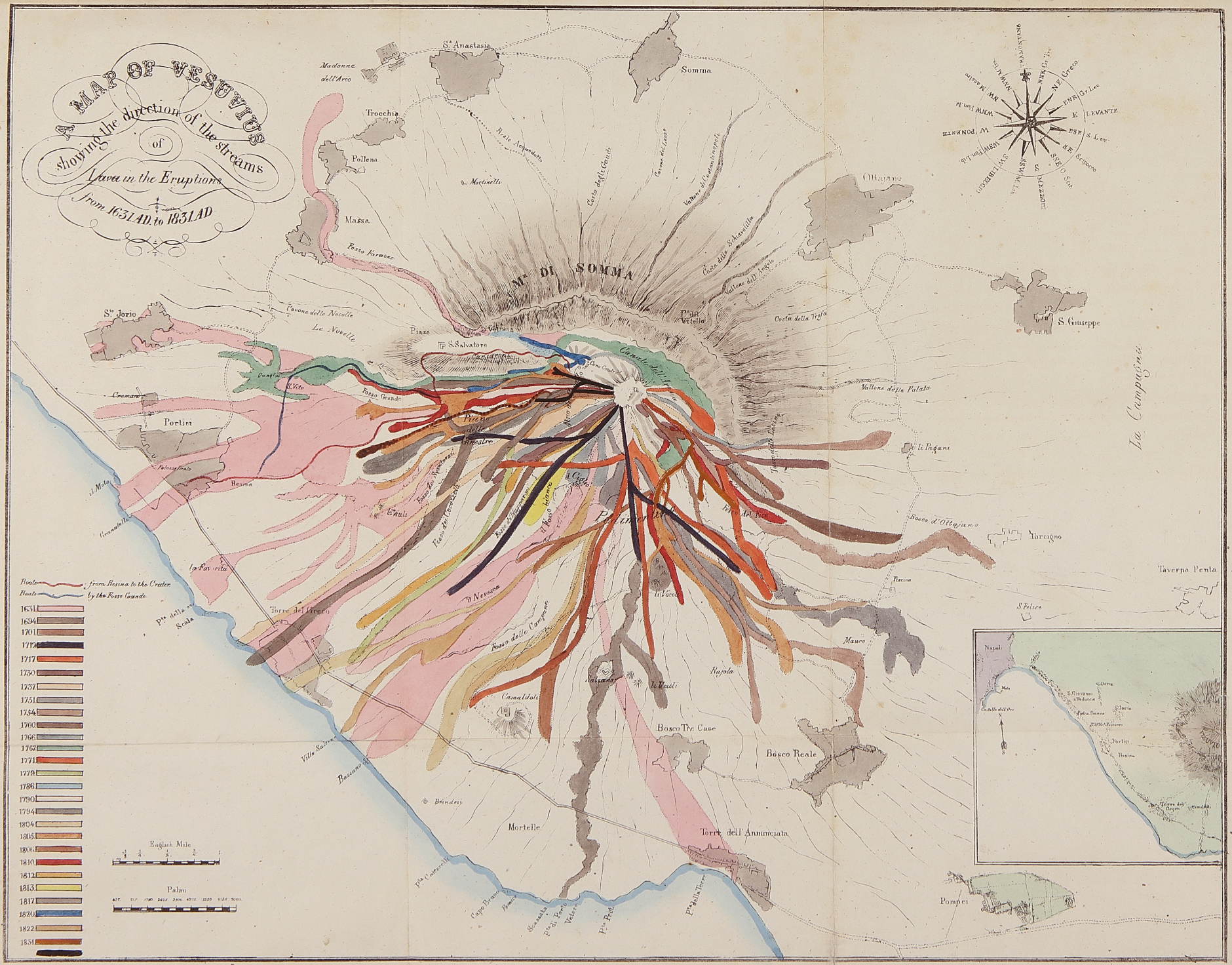
A

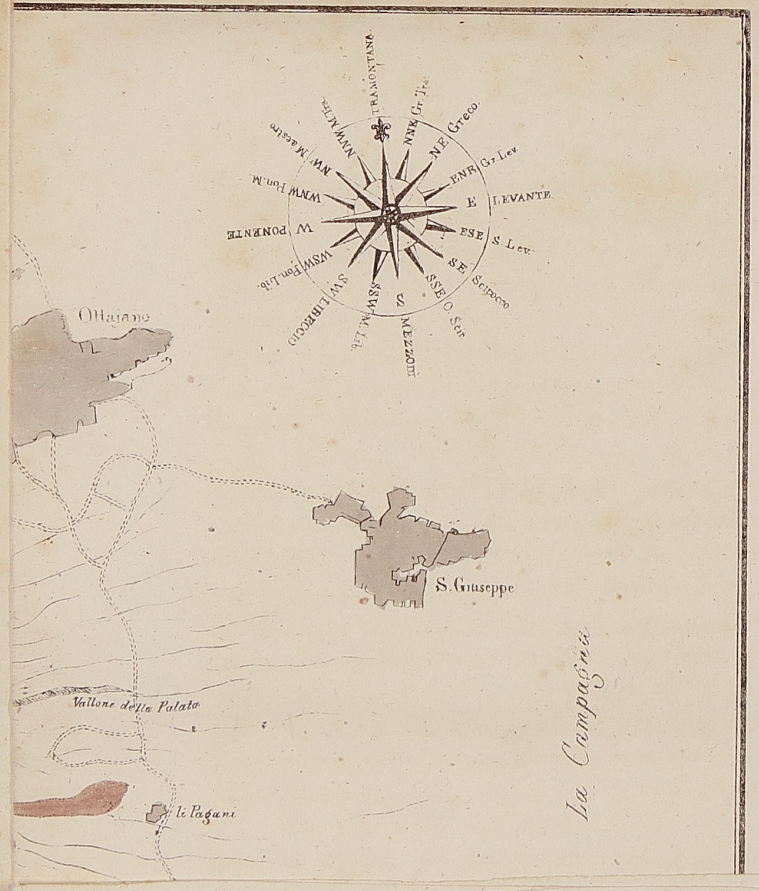
SHORT ACCOUNT

OF THE

ERUPTIONS OF VESUVIUS

FROM THE YEAR 79 TO THE PRESENT TIME.


A MAP OF VESUVIUS
showing the direction of the streams
of
Lava in the Eruptions
from 1631 AD. to 1831 AD
Mte DI SOMMA
Somma
Ottajano
S. Giuseppe
Portici
Resina
Torre del Greco
Torre dell' Annunciata
Bosco Reale
Bosco Tre Case
Mortelle
Pompei
Torcigno
Taverna Penta
La Campagna
Canale dell' Arena
Pianura
Pozzo
S. Salvatore
Le Novelle
Madonna dell'Arco
Trocchia
Pollena
Massa
Fosso Faraone
Fosso Grande
Fosso delle Ginestre
Fosso delle Campane
Camaldoli
Rajola
Mauro
Bosco d'Ottajano
Vallone della Palata
Costa della Trofa
Costa delle Schiavonilla
Costa degli Eremiti
Cavone del Leone
Vallone di Castantinopoli
Vallone dell'Arena
Reale Acquedotto
Cavone delle Novelle
Villa Salerno
Brindesi
Capo Bruno
Scala
Napoli
Route from Resina to the Crater
Route by the Fosso Grande
1631
1694
1701
1712
1717
1730
1737
1751
1754
1760
1766
1767
1771
1779
1786
1790
1794
1804
1805
1806
1810
1812
1813
1817
1820
1822
1831
English Mile
Palmi
V. Marsigli f.t in Lit.



ERUPTIONS

OF

VESUVIUS.

"*Forth from whose nitrous caverns rise*
Pure liquid fountains of tempestuous fire,
And veil in ruddy mist the noon-day skies;
While wrapt in smoke the eddying flames aspire,
Or gleaming through the night with hideous roar,
Far o' er the reddening main huge rocky fragments pour.'

THE history of Vesuvius, previous to the commencement of the Christian era, is involved in the obscurity of fable. The historians and geographers of that early epoch, allude to its eruptions, but make no precise mention of the periods to which tradition or the annals, then extant, assigned them. In describing the appearance of the mountain, they have, moreover,

given no clear information with regard to its form, so that we are uncertain whether, in their days, it rose, from the base, as a single cone or had the shape it now presents; though, from its structure, it is evident that the wall of Somma and the ridge of the Pedementina once formed the circumference of the cone, the height of which was probably much greater than that of the present one; for without such a supposition "the original crater must have been many miles in diameter, and more enormous than almost any one known on the globe". *

No record informs us when that part, of which the Pedementina formed the base, was carried away, although it is generally supposed to have been displaced during the great eruption of 79 A. D. Somma, the only part of the original crater which resisted the shock, remaining.

The first author who takes notice of Vesuvius is Diodorus of Sicily, and he states "that it had, in former times, thrown out fire, like Etna, and that it still (25 years before Christ,) retained many vestiges of ancient eruptions".

The next is Strabo who wrote about 17 years B. C. After giving a description of the localities of Herculaneum, Pompei, Nola, Nocera and Acerra, he says; "Over these is situated Vesuvius, a

* Lyell.

mountain surrounded by very fertile land, though the summit, the greater part of which is flat and barren, like ashes in appearance, contains caverns full of holes, and stones of a dark colour as if burnt by fire. It is, therefore easy to conjecture that these places, formerly, were ignited and had craters of fire which afterwards became extinct for want of materials to consume".

Vitruvius 15 years B. C. recommends an earth, (Pozzuolana,) found about Baja aud the neighbouring country, at no great distance from Vesuvius, as being a most proper and durable cement for building, under water as well as on dry land. He supposes one cause of its excellence to be the process it has undergone in the fire which lies below all this district. "It deserves also to be mentioned," continues he "that long ago fire greatly encreased under Vesuvius, whence it arose and discharged flames over the country around".

This is all we learn of Vesuvius from those who described it before the reign of Titus; and we may suppose that if the summit or crater had not been a sterile plain, while its sides were covered with luxuriant woods, with vineyards and gardens, it would have presented at that time much the same aspect as do now Monte

*

Barbaro and the Astroni where the thickets are almost impervious and forest trees grow closely together. The inhabitants of the populous cities around it, no doubt lived in fancied security, little dreaming that a dangerous element lay beneath them; that irresistible torrents of fire were ready to burst out from the bowels of the then tranquil mountain; and that these, in their precipitous descent, might involve them all, as indeed they did, in one common destruction.

The first portentous sign of returning vigour which Vesuvius gave, was an earthquake in the year 63, the shocks of which laid in ruins most of the cities at its base, and frightened and drove away the inhabitants from their dwellings. No sooner, however, had the terror, inspired by this convulsion, subsided, than the people, returning to their habitations, proceeded to repair them and to rebuild the public edifices.

Sixteen years of treacherous quiet passed away, when the mountain began again to exhibit its tremendous activity during which,

> " Clouds quench the sun and thunder-smoke
> Strangles the air and fire eclipses heaven "

and which has since often threatened the neighbouring country with devastation.

79 A. D. The first recorded eruption, that by which Herculaneum and Pompei were buried,

began on the 24th August, and is so fully described by Pliny the younger, in two letters to Tacitus, that I cannot do better than by inserting them.

" To Tacitus *

" Your request that I would send you an account of my uncle's death, in order to transmit a more exact relation of it to posterity, merits my acknowledgments; for, if the glorious circumstances which occasioned this accident shall be celebrated by your pen, the manner of his exit will be rendered for ever illustrious. Notwithstanding he perished by a misfortune, which, as it involved, at the same time, a most beautiful country in ruins, and destroyed so many populous cities, seems to promise him an everlasting remembrance: notwithstanding he has himself composed many works which will descend to the latest times; yet, I am persuaded, the mentioning of him in your immortal writings, will greatly contribute to eternize his name. Happy I deem those to be, whom the gods have distinguished with the abilities either of performing such actions as are worthy of being related, or of relating them in a manner worthy of being

* Melmoth's translation Book IV Let. 16.

read; but doubly happy are they who are blessed with both these uncommon endowments: and in that number my Uncle, as his own writings, and your history will prove, may justly be ranked. It is with extreme willingness, therefore, I execute your commands; and I should, indeed, have claimed the task if you had not enjoined it. He was, at that time, with the fleet under his command, at Misenum. On the 24th of August, about one in the afternoon, my mother desired him to observe a cloud which appeared of a very unusual size and shape. He had just returned from enjoying the benefit of the sun, and after bathing in cold water, and taking a slight repast, was retired to his study: he immediately arose, and went out upon an eminence, from whence he might more distinctly view this very singular phenomenon. It was not, at that distance, discernible from what mountain this cloud issued, but it was found afterwards to proceed from Vesuvius. I cannot give you a more exact description of its figure, than by resembling it to that of a pine-tree; for, it shot up a great height in the form of a tall trunk, which spread at the top into a sort of branches; occasioned, I suppose, either that the force of the internal vapour which impelled the cloud upwards, decreased in strength as it advanced,

or that the cloud, being pressed back by its own weight, expanded itself in the manner I have mentioned: it appeared sometimes bright, and sometimes dark and spotted, as it was either more or less impregnated with earth and cinders. This uncommon appearance excited my uncle's philosophical curiosity to take a nearer view of it. He accordingly ordered a light vessel to be prepared, and offered me the liberty, if I thought proper, to attend him. I rather chose to continue the employment in which I was engaged; for, it happened, that he had given me a certain writing to copy. As he was going out of the house with his tablets in his hand, he was met by the mariners belonging to the gallies stationed at Retina, from which they had fled in the utmost terror; for, that port being situated at the foot of Vesuvius, they had no other way to escape than by sea. They conjured him, therefore, not to proceed and expose his life to imminent and inevitable danger. In compliance with their advice, he changed his original intention, and instead of gratifying his philosophical spirit, he resigned it to the more magnanimous principle of aiding the distressed. With this view, he ordered the fleet immediately to put to sea, and went himself on board with an intention of assisting not only Retina,

but the several other towns which stood thick upon that beautiful coast. Hastening to the place, therefore, from whence others fled with the utmost terror, he steered his direct course to the point of danger, and with so much calmness and presence of mind, as to be able to make and dictate his observations upon the appearance and progress of that dreadful scene. He was now so near the mountain, that the cinders, which grew thicker and hotter the more he advanced, fell into the ships, together with pumice-stones, and black pieces of burning rock; they were, likewise, in danger not only of being a-ground by the sudden retreat of the sea, but also from the vast fragments which rolled down from the mountains, and obstructed all the shore. Here he stopped, to consider whether he should return back; to which the pilot advising him, "Fortune", said he, "befriends the brave; steer to Pomponianus." Pomponianus was then at Stabia, separated by a gulf, which the sea, after several insensible windings, forms upon that shore. Pomponianus had already sent his baggage on board; for, though he was not at that time in actual danger, yet, being within the view of it, and, indeed, extremely near, he was determined, if it should in the least increase, to put to sea as soon as the wind should change.

It was favourable, however, for carrying my uncle to Pomponianus, whom he found in the greatest consternation; and embracing him with tenderness, he encouraged and exhorted him to keep up his spirits. The more to dissipate his fears, he ordered his servants, with an air of unconcern, to carry him to the baths; and, after having bathed, he sat down to supper with great, or at least (what is equally heroic) with all the appearance of cheerfulness. In the mean while the fire from Vesuvius flamed forth from several parts of the mountain with great violence; which the darkness of the night contributed to render still more visible and dreadful. But my uncle, in order to calm the apprehensions of his friend, assured him it was only the conflagration of the villages, which the country people had abandoned; after this, he retired to rest, and it is most certain, he was so little discomposed as to fall into a deep sleep; for, being corpulent, and breathing hard, the attendants in the antichamber actually heard him snore.

The court which led to his apartment being now almost filled with stones and ashes, it would have been impossible for him, if he had continued there any longer, to have made his way out; it was thought proper, therefore, to awa-

ken him. He got up, and joined Pomponianus and the rest of the company, who had not been sufficiently unconcerned to think of going to bed. They consulted together whether it would be most prudent to trust to the houses, which now shook from side to side with frequent and violent concussions; or flee to the open fields, where the calcined stones and cinders, though levigated indeed, yet fell in large showers, and threatened them with instant destruction. In this distress, they resolved for the fields, as the less dangerous situation of the two; a resolution which, while the rest of the company were hurried into by their fears, my uncle embraced upon cool and deliberate consideration. They went out, then, having pillows tied upon their heads with napkins; and this was their whole defence against the storm of stones that fell around them. It was now day every where else, but there a deeper darkness prevailed than in the blackest night, which, however, was in some degree dissipated by torches and other lights of various kinds. They thought it expedient to go down farther upon the shore, in order to observe if they might safely put out to sea; but they found the waves still running extremely high, and boisterous. There my uncle, having drunk a draught or two of cold water, laid himself

down upon a sail-cloth which was spread for him; when immediately the flames, preceded by a strong smell of sulphur, dispersed the rest of the company, and obliged him to rise. He raised himself up, with the assistance of two of his servants, and instantly fell down dead; suffocated, I conjecture, by some gross and noxious vapour, as having always had weak lungs, and being frequently subject to a difficulty of breathing. As soon as it was light again, which was not till the third day after this melancholy accident, his body was found entire, and without any marks of violence, exactly in the same posture in which he fell, and looking more like a man asleep than dead. During all this time, my mother and I, who were at Misenum — But as this has no connexion with your history, so your enquiry went no farther than concerning my uncle's death: with that, therefore, I will put an end to my letter. Suffer me only to add, that I have faithfully related to you what I was either an eye-witness of myself, or received immediately after the accident happened, and before there was time to vary the truth. You will choose out of this narrative such circumstances as shall be most suitable to your purpose; for there is a great difference between writing a letter, and composing a history; between

addressing a friend, and addressing the public. Farewell. "

"To Cornelius Tacitus *

"The letter which in compliance with your request, I wrote to you, concerning the death of my uncle, has raised, it seems, your curiosity to know what terrors and dangers attended me while I continued at Misenum; for there, I think the account in my former broke off.

"Tho'my shock'd soul recoils, my tongue shall tell."

My uncle having left us, I continued the employment which prevented my going with him, till it was time to bathe; after which I went to supper, and then fell into a short and unquiet sleep. There had been, during many days before, some shocks of an earthquake, which the less alarmed us as they are frequent in Campania; but they were so particularly violent that night, that they not only shook every thing about us, but seemed, indeed, to threaten total destruction. My mother flew to my chamber, where she found me rising in order to awaken her. We went out into a small court belonging to the house, which separated the

* Melmoth's translation Book VI Let. 20.

sea from the buildings. As I was at that time but eighteen years of age, I know not whether I should call my behaviour, in this perilous conjuncture, courage or rashness; but I took up Livy, and amused myself with turning over that author, and even making extracts from him, as if I had been perfectly at my ease. While we were in this situation, a friend of my uncle's who was just come from Spain, to pay him a visit, joined us, and observing me sitting by my mother with a book in my hand, reproved her patience, and my security; nevertheless, I still went on with my author. It was now morning, but the light was exceedingly faint and languid; the buildings all around us tottered, and though we stood upon open ground, yet, as the place was narrow and confined, there was no remaining without imminent danger: we therefore resolved to leave the town. The people followed us in the utmost consternation, and (as to a mind distracted with terror, every suggestion seems more prudent than its own) pressed in great crowds about us in our way out. Being advanced at a convenient distance from the houses, we stood still, in the midst of a most hazardous and tremendous scene. The chariots which we had ordered to be drawn out, were so agitated backwards and forwards, though upon

the most level ground, that we could not keep them steady even by supporting them with large stones. The sea seemed to roll back upon itself, and to be driven from its banks by the convulsive motion of the earth; it is certain, at least the shore was considerably enlarged, and several sea-animals were left upon it. On the other side a black and dreadful cloud bursting with an igneous serpentine vapour, darted out a long train of fire, resembling flashes of lightning but much larger. Upon this our Spanish friend, whom I mentioned above, addressing himself to my mother and me, with great warmth and earnestness: "If your brother and your uncle," said he: "is safe, he certainly wishes you may be so too; but if he perished, it was his desire, no doubt, that you might both survive him; Why therefore, do you delay your escape a moment?" We could never think of our own safety, we replied, while we were uncertain of his: upon which our friend left us, and withdrew from the danger with the utmost precipitation. Soon afterwards, the cloud seemed to descend, and cover the whole ocean; as, indeed, it entirely hid the island of Caprea, and the promontory of Misenum. My mother conjured me to make my escape at any rate, which, as I was young, I might easily effect; as for herself,

she said, her age and corpulency rendered all attempts of that sort impossible: however, she would willingly meet death, if she could have the satisfaction, of seeing that she was not the occasion of mine. But I absolutely refused to leave her, and taking her by the hand I led her on: she complied with great reluctance, and not without many reproaches to herself for being the occasion of retarding my flight. The ashes now began to fall upon us, though in no great quantity. I turned my head, and observed behind us thick smoke, which came rolling after us like a torrent, I proposed, while we had yet any light, to turn out of the high road, lest she should be pressed to death in the dark, by the crowd that followed us. We had scarcely stepped out of the path, when darkness overspread us, not like that of a cloudy night, or when there is no moon, but of a room when it is shut up, and all the lights extinct. Nothing, then, was to be heard but the shrieks of women, the screams of children, and the cries of men; some calling for their children, others for their parents, others for their husbands, and only distinguishing each other by their voices; one lamenting his own fate, another that of his family; some wishing to die, from the very fear of dying; some lifting their hands to the gods;

but the greater part imagining that the last and eternal night was come, which was to destroy both the gods and the world together. Among these there were some who augmented the real terrors by imaginary ones, and made the frighted multitude falsely believe that Misenum was actually in flames. At length, a glimmering light appeared, which we imagined to be rather the forerunner of an approaching burst of flames, (as in fact it was) than the return of day; however, the fire fell at a distance from us: then again we were immersed in thick darkness, and a heavy shower of ashes rained upon us, which we were obliged every now and then to shake off, otherwise we should have been overwhelmed and buried in the heap. I might boast, that during all this scene of horror, not a sigh, or expression of fear, escaped from me, had not my support been founded on that miserable, though strong consolation, that all mankind were involved in the same calamity, and that I imagined I was perishing with the world itself. At last, this terrible darkness was dissipated by degrees, like a cloud or smoke; the real day returned, and even the sun appeared, though very faintly, and as when an eclipse is coming on. Every object that presented itself to our eyes (which were extremely weakened) seemed

changed, being covered with white ashes, as with a deep snow. We returned to Misenum, where we refreshed ourselves as we could, and passed an anxious night between hope and fear; though, indeed, with a much larger share of the latter: for, the earth still continued to shake, while several enthusiastic persons ran wildly among the people, throwing out terrifying predictions, and making a kind of frantic sport of their own and their friends' wretched situation. However, my mother and I, notwithstanding the danger we had passed, and that which still threatened us, had no intention of leaving Misenum, till we should receive some account of my uncle.

And now, you will read this narrative without any view of inserting it in your history, of which it is by no means worthy; and, indeed, you must impute it to your own request, if it should appear not to deserve even the trouble of a letter. Farewell. "

Plutarch, 104 years afterwards, speaks " of the eruption of fire from the mountain, the agitation of the sea, the projection of rocks and flaming masses and the burying of many cities, at present so completely lost that no one can even discern where they stood. "

Dion Cassius * gives a description of this eruption, but he mixes up fact with the tales of wonder which had been invented and handed down by tradition during the preceding 150 years. He says " Extraordinary events occurred in Campania, for fire suddenly broke out from Vesuvius, in which mountain there were copious sources of fire. Formerly its summit was equal on every part, the sides untouched by fire, and the interior only, burnt and reduced to ashes. A part of the circumference became ignited, was consumed, and fell, leaving the rest in a concave form, so that it resembled an Amphitheatre. "

After describing gigantic apparitions in the air, he continues " A great dearth followed, and violent earthquakes shook the country. Then succeeded bellowing noises, both subterranean and aerial; the sea roared terribly, and sudden crashes were heard as if mountains were rent in pieces. Large stones were thrown up, and great masses of fire and smoke so that the air was darkened and the sun obscured as if eclipsed; quantities of ashes covered the earth and sea, destroying every thing, and burying two entire cities, Herculaneum and Pompei, while the

* Hist. Rom. lib. LXVI.

people sat in the theatre; the ashes were carried to Africa, Syria and Egypt, and great terror was caused in Rome, where the air was so completely darkened by them that the sun was not seen for a whole day. "

Galenus in 172 A. D. describing the situation of Vesuvius, states that the mountain had become celebrated on account of the eruption.

Eutropius[1] who wrote A. D. 370, in detailing the events of the reign of Titus, says " At that time, also, Vesuvius, a mountain of Campania, opened; there came out a quantity of burning matter, and the neighbouring region, with its cities and inhabitants was destroyed by floods of flame. "

203 A. D. The second eruption, is also alluded to by Dion in the life of Septimius Severus.[2] " In those days " says he " an immense fire broke out on the mountain Vesuvius, and such was the loudness of the explosions, that they were heard even at Capua, in which city I reside, when I make any stay in Italy. "

472 A. D. Sigonius, in his history of the Western Empire,[3] speaks of the third eruption as follows: " In the year 472 Vesuvius, a mountain of Campania, disturbed by internal fire vomited out its burnt up entrails; a darkness, like that

[1] Hist. Rom. lib. IX. [2] Hist. Rom. lib. XXVI. [3] Lib. XIV.

of night, reigned during the day and all Europe was covered with fine ashes." According to his account the latter fell in Constantinople, where they raised considerable curiosity and even created some alarm.

512 A. D. The fourth eruption happened during the reign of Theodoric, and Cassiodorus, in a letter to the king, describes it as having commenced with a violent rumbling sound in the interior of the mountain, then columns of thick smoke and ashes were thrown out, the latter falling at great distances from the mountain, streams of hot sand glided down from its summit, and the sides of these torrents, impeded in their course, were heaped up, forming two banks between which the sand flowed like water.

685 A. D. In the month of March and in the reign of Constantine the fourth, the next eruption occurred, in which much fire was seen on the summit and a great quantity of ashes ejected.

993 A. D. The sixth eruption now took place, and Glabrus Rodolphus, according to Baronius relates "that there happened very wonderful eruptions of fire from Vesuvius. Besides the injury done to many other cities of Italy, Rome was burnt in several parts, the fire attacking the cathedral of S.t Peter. Prayers were offered up to the

Apostle to implore his aid for the preservation of the buildings, and, we are told that the fire immediately ceased." It is supposed that this is also the eruption which Guaimarius prince of Salerno is said to have seen, when "from afar off he beheld the pitchy and sulphurous flames that burst suddenly from Vesuvius."

1036 A. D. The seventh eruption began on the 27th February and is the first in which any mention is made of lava, or of liquified matter, that in cooling became hard and of the consistence of stone. The lava not only flowed from the summit, but also from the sides of the cone, and ran down into the sea.

1049 A. D. The eighth eruption is supposed to have been remarkable for the quantity of lava it threw out, which is described in the account that Marsicano cardinal and bishop of Ostia, has given of it as "a torrent of sulphurous resin or bitumen, that descended to the sea and became petrified."

1138 A. D. The ninth eruption occurred on the 29th May, and the Anonymous writer in the chronicles of the convent of Monte Casino, says "the mountain Vesuvius threw out fire for forty days;" and he again alludes to it in speaking of the coming of Roger the 3d to Salerno: "After this there was a great eruption of Vesuvius,

followed by heavy clouds of dust that darkened the air and covered the whole region even to the Principato Ultra and Calabria, their motion increasing and decreasing, as if agitated by the wind. "

1139 A. D. The tenth eruption was accompanied by a great quantity of fire, which lasted 8 days, and for 30 days after, dark and alarming clouds of ashes were ejected.

1306 A. D. During the eleventh eruption a torrent of melted matter flowed down to the sea laying waste a great extent of country.

1500 A. D. The twelfth eruption was witnessed by Leon of Nola who wrote a description of his native place and of Vesuvius. Among the substances thrown out he notices showers of red ashes which fell over a great space of country around Vesuvius.

The long interval of repose betwen the 12th and 13th eruptions * enabled the proprietors of

* A. D. 1538. During the years 1537 and 1538 numerous shocks of earthquakes were felt along the whole coast of Baia, and on the 27th and 28th September in the latter year, they became violent and terrifying. About 8 o'clock in the evening of the 29th a fissure opened in the earth near Tripergola, a village famous for its baths, situated about a mile to the west of Pozzuoli. A conical shaped hill formed of the matter extruded during that night and the following day, rose up through the chasm, destroying and occupying the site of the village, as well as the greater part of the Lucrine lake. Its present height

land on the mountain to cultivate it higher up towards the cone; and we are told that all the plain (now the Atrio and Pedementina,) around it, was covered with herbage fit for cattle, and many plants very useful for medical purposes.

The base of the cone was six miles round, and its steep, barren sides rose 350 geometrical feet above the plain. From its summit was visible a gulf a thousand paces deep, four miles in circuit and shaped like the hull of a ship: it was surrounded by a skreen of burnt rock on which nothing would grow; but a slope descended thence to a narrow ledge covered with shrubs, where a zig-zag path went through thickets to a plain at the bottom, and there cattle might graze, for the vegetation flourished wherever the sun reached it.

Oaks, elms, holm-oaks, lime and ash trees, besides privet, broom and other shrubs, covered one part of the plain, and among them wild boars frequently took shelter; in another part there were three pools, the water of one of which was hot and bitter, of another hot and tasteless, and that of the third was salter than the sea; while the plain towards the South East

is 440 English feet above the level of the sea; the depth of its crater, which is an inverted cone, is 421 feet, and it is, at its base, nearly a mile and a half in circumference

was distinguished only by being strewn with ashes.

1631 A. D. The thirteenth eruption was preceded by shocks of earthquakes, and the drying up of the wells around the mountain. On the 16th of December the volcano threw out immense volumes of smoke which rose in the shape of a pine-tree, in the manner described by Pliny, and thence spreading out, cast a shade over the whole gulf and covered the country with ashes and sand. In the midst of the thick smoke " vivid flashes of lightning, like arrows of fire, were frequently seen; thunder was heard to roll fearfully, and vast stones were shot from the crater. " The next day a part of the western side of the crater burst open, and a sulphurous, bituminous, vitrified matter rapidly descended the mountain like a torrent of molten glass, and a stream of hot ashes ran from the summit, laying waste the country. The torrent of lava divided itself into seven principal streams, destroying gardens, vineyards, towns, every thing that lay in its way. One stream ran to Pietra Bianca between S.ta Maria di Securreris near Portici; the third to S.t Giorgio and Cremano in S.t Iorio, which, except the church, was totally destroyed. A fourth reached Portici and Granatello; a fifth Resina, completely overwhelming it and Torre del Greco, of which

two thirds were laid in ruins. The sixth went to Torre dell'Annunziata, which it nearly destroyed, and the seventh to Massa, S.t Sebastiano, and la Madonna dell' Arco; four thousand people fell victims to the flames, and the whole country presented one heap of smoking ruins.

After the eruption it rained heavily for two days, and the water rushing down the sides of the mountain carried sand and ashes along with it, laying waste the land which had not been touched by the lava, and even covering houses in its course. On the 20th an earthquake shook the mountain and was felt in Naples, where it alarmed the people, and did considerable damage. On the 28th a torrent of water again flowed down the mountain, and, as there had been no rain for several days, many supposed that it was water sucked from the sea into the hollow under Vesuvius and again forced out from its mouth; some people declared that they had found sea weed in it and fish ready boiled. It is possible, that the water, from the rains, had been pent up in the valley between Somma and the cone by ashes; and had, at last, burst its barrier. Rumbling sounds in the mountain were heard for many days and then it became perfectly tranquil.

1660 A. D. The fourteenth eruption occurred

in the month of July, unaccompanied by any noise. The lava boiled up within the crater until it reached the summit, and then, flowing over, ran down on the country. This was succeeded by great quantities of smoke, charged with dust and ashes, which fell and did much damage to the vineyards.

1682 A. D. The fifteenth eruption happened on the 12th August. The smoke issued from the summit in the shape of a pine, and showers of ashes and lapillo followed. The smoke was constantly evolved till the 22d, accompanied by lightning, which flashed through it, and by some inconsiderable earthquakes. The level of the lava in the crater was considerably raised, but it did not overflow. Slight eruptions also occurred during the years 1685 and 1689.

1694 A. D. The mountain remained tranquil until the 12th of March, when the sixteenth eruption took place. A great earthquake, early in the month, had prepared the inhabitants for an explosion, which in fact happened at 9 o 'clock in the evening. The lava flowed over the summit and ran towards the Fosso Corvo where it separated into two streams, one of which slowly approached Torre del Greco, the other S.t Iorio. Two years afterwards another stream issued from the summit taking the direction of the Hermitage

till its progress was arrested by the lava of 1694. Again, on the 15th and 16th September 1697 a stream flowed towards Torre del Greco over the old one, much alarming the inhabitants of the town. On the 25th May 1698 the lava once more rushed down, and, separating into two streams, took its way to the Hermitage and Resina. Soon after another stream directed itself towards Torre del Greco and, in two days, had very nearly approached it. Much smoke and dust were thrown out accompanied by loud detonations, but by the 12th of June the mountain had become tranquil.

1701 A. D. The seventeenth burst out on the 1st of July with showers of stones and ashes; the next day the lava flowed from the summit towards the woods of Ottajano and Bosco Reale. On the 15th the mountain was quiet and the lava had stopped.

1704 A. D. On the 20th of May, the eighteenth eruption commenced by a shower of ashes, accompanied by a hollow rumbling sound which was heard at a great distance. The lava rose above the edge of the crater, but did not pass it. In 1705, 1706, and from the 28th July to the 18th of August 1707, and on the 14th of August 1708 the same phenomena occurred.

1712 A. D. The nineteenth eruption began

on the 15th February, but it was not until the 26th of April that the lava appeared on the outside of the cone, when a considerable stream descended its southern flank towards the Fosso Bianco. Several smaller streams flowed into the territory around Torre del Greco on the 12th and 17th of May following. On the 29th of October a new stream reached the Fosso Bianco and advanced, on the 8th November, towards Torre del Greco. In May 1713 the lava again issued from the summit, directing itself, at different times, towards Ottajano, Torre del Greco, Resina, and in June 1714 it flowed towards Torre dell' Annunziata, for several days, accompanied by showers of ashes and subterranean detonations.

1717 A. D. The twentieth eruption occurred on the 6th June. The southern side of the cone burst open and the lava rushed out, flowing in two directions, one being Bosco Tre Case and the other lying between the Camaldoli and Torre del Greco: on the 16th September 1718 more lava issued, one part flowing towards Mauro and another to Bosco Reale and Resina. Vesuvius continued in a state of occasional activity till July 1719 when it became tranquil. In 1723 the lava spread out like a lake in the valley between Somma and the cone, and, on the 29th of June, descended towards Mauro: it continued to do so till the

8th of July. In 1724 and 1725 the lava flowed over that of the preceding years, but on the 20th April 1726 it ran towards the Hermitage and Torre del Greco. In March 1727 and July 1728 other lavas flowed over these.

1730 A. D. The twenty first eruption began on the 27th February, announced by a shower of ashes and dust which was thrown out with a dreadful noise. In eleven days from the 19th March, a torrent of lava descended into the woods of Ottajano. In 1732 the lava flowed out, on the 8th January, and continued running, at long intervals, till the 1st of May. In June, Sorrentini says, the level of the lava was even with the edge of the crater, and on the 10th July it ran over and flowed down the mountain, at several times, until the middle of Janry 1734 when it became quiet.

1737 A. D. The twenty second eruption was preceeded by an enormous column of smoke which rose from the crater on the 14th of May. On the 15th and 16th the lava was higher than the edge of the crater and it flowed over, menacing Bosco Reale with destruction; at the same time very large stones were continually shot up, from the centre of the crater. On the 20th the showers of ashes and lapillo were immense, and rumblings were heard in the mountain. At six in the evening

an opening was formed in the southern side, through which a quantity of lava issued, and descended, in four hours, to the outer edge of the plain of the Pedementina. At one in the morning of the 21st the stream of lava had greatly augmented, and, splitting at the base of the cone into several streams, it proceeded towards Resina, filling up a deep ravine, covering a great extent of land around Torre del Greco, and, reaching the sea on the same day, ceased to flow. Volumes of smoke, ashes, and lapillo were vomited out of the crater during the eruption; flashes of fire constantly darted through the smoke, and were called by the common people "ferilli".

1751. A. D. The twenty third eruption happened in October, on the 22d of which month, at 5 o 'clock in the morning, violent explosions were heard on the side of the crater towards Bosco Reale. On the 23d an earthquake was felt at Massa, and also at Naples, and on the 25th about midnight, the cone, a little above its base and opposite Bosco Tre Case, burst open, a stratum of compact ancient lava, partly melted by the heat, having been turned over. A stream issued immediately, descended to the plain and flowed towards Tre Case, but lower down it changed its course and running on to Mauro, traversed a distance of four miles in eight hours,

burning up every thing with which it came in contact. In November it had ceased to run, but it was many months in cooling. Two smaller streams went towards the Bosco d'Ottajano, but soon stopped.

1754 A. D. The twenty fourth eruption broke out abruptly on the 2d of December: the cone presented two openings, one facing Bosco Tre Case and the other over Ottajano; the lava from them advanced towards both of these places. Della Torre observed in the air, close to the column of smoke, some circles formed in it, similar to those occasioned by the discharge of cannon, and they remained in the air from 15 to 23 minutes, till, at length, they were dissipated by the wind. This fact had been noticed in 1730 by Sorrentini. About the end of the following January, an interior or small cone was seen, from Naples, above the edge of the great crater, and on the 31st the great cone burst open opposite the eastern end of Somma, and lava flowed out for two months, following the course of a former stream towards the woods of Ottajano. The mountain continued in a state of almost uninterrupted activity from 1754 to 1759.

1759 A. D. The twenty fifth eruption occurred on the 27th of March. On the 29th the explosions were awful, and shook the windows

in Naples. On the 30th, at 7 o 'clock in the evening, the lava issued from the summit and flowed with great rapidity down the mountain, and, though it ceased the next day, it did much injury to property.

1760 A. D. The twenty sixth eruption was remarkable for the situation of the opening, whence the lava flowed. It was not, as it had always been before, on the side of the cone, or on the plain near its base, but at a great distance down on its southern flank, about one mile above the convent of the Camaldoli della Torre. After several shocks of earthquake, and great fermentation in the interior of the mountain, twelve openings were there formed with a fearful uproar which lasted a considerable time, and resembled a continual discharge of heavy artillery. From these openings quantities of small red-hot stones were ejected, accompanied by black smoke which rose like a great pine, a shape very common in great eruptions. Lava then flowed from them towards the high road between Naples and Torre dell' Annunziata. On the 23rd in the evening, three new openings were formed, and the lava next day arrived at the road. On the 26th a new stream took the direction of Bosco Tre Case, and great volumes of smoke ascended from the crater. On the 28th a current of lava took its

course towards Torre del Greco, but it stopped on the 29th. The progress of these streams was slow, and the principal one did not reach the sea, though it approached to within 12 paces of it. The ejection of smoke and stones from the crater did not stop till the 7th Janry 1761 when the noise, which had continued till then, ceased and no smoke appeared, either from the crater or from the openings whence the lava had risen.

Over these openings three truncated conical craters which still exist, were thrown up and now bear the name of Vocoli or Viuli. The upper edge of the smallest has a circumference of more than a hundred feet; the interior cavity is forty feet deep. Small trees and brush-wood grow within them, and the outsides of two of them are planted with vines.

1766 A. D. The twenty seventh eruption, occurred after four years of complete repose, the white smoke which occasionally escaped from the crater, being the only sign that it had not become extinct. On the 28th of March dense smoke escaped from the mountain, burning stones were ejected and the side of the cone, towards Resina, burst open near the summit, considerably diminishing its height on that side, and the lava flowed down to the Atrio del Cavallo. On the 6th of April the small interior cone could

be seen from Naples, and on the 10th the opposite, or S. E. side was rent, and lava, issuing occasionally, ran towards the Bosco d' Ottajano until the December following.

1767 A. D. The twenty eighth eruption occurred in March, the small cone in the interior of the great crater, was seen from Naples, above the edge of the great one, and at night large masses of molten lava that were thrown out, were plainly discernible. During the summer, lava descended from the inner cone and filled the bosom of the greater one, and from September until the 19th October the projection of stones became more violent. On that day the noise was so loud, as to be distinctly heard at Naples and the smoke rose in dense masses piled upon each other, like heavy thunder clouds, and hung over the gulf from Castell' amare to Ischia. Towards the close of the day the mountain opened near the summit, on the side towards Bosco Reale, and a torrent of lava flowed down to the Pedementina, whence one branch went towards Resina, the other to Ottajano. The concussions from the explosions made the windows in Naples rattle and greatly frightened the people, but next day, their terror was increased, by the smoke becoming so thick and falling so low, that Vesuvius could not be seen. In the

evening, just as the shade of night began to add to the obscurity caused by this mist of ashes, an awful crash appalled even the bravest, for all were ignorant from what it had proceeded. The following morning it was discovered that the cone had been split from the summit, to more than half way down, and that lava had flowed out over the Atrio and far into the vineyards near St. Jorio. On the 23rd the volcano became more tranquil: on the 24th fine sand fell in Naples and ashes near the mountain, but on the 27th it was once more tranquil.

1771 A. D. On the first of May the twenty ninth eruption began by a rumbling hoarse sound in the interior of the mountain, and, at midday, the lava issued from a crack in the cone, about two hundred feet below its summit. On the 9th it again flowed from the same opening, but with greater rapidity than before, in a winding course over the Atrio del Cavallo, and, entering into the cultivated parts, it did much damage.

1779 A. D. The thirtieth eruption occurred at about seven in the evening, on the 8th of August. An immense cloud of black smoke, loaden with ashes, rose from the mountain and showers of ignited masses were thrown out on the flanks of Vesuvius, in such quantities that, at

night, its black form seemed as if studded with millions of stars. Lava, also, ran from the summit of the cone for a short distance, but ceased in a few days.

1786 A. D. The thirty first eruption began in November 1785 when several small craters broke out on the side of the cone towards Somma. In January 1786 the eruption greatly increased, and the lava issuing from a rent near the smaller crater, flowed into the Fosso Vetrana, where, at the commencement of the ravine, it fell over a perpendicular precipice, forming a beautiful cataract, and proceeding thence reached the little chapel of the Madonna della Vetrana, forced a passage through it, the side walls, which it left uninjured, serving as sides to its extraordinary channel, and after running several hundred yards further down the Fosso, it stopped.

1790 A. D. The thirty second eruption happened in the month of September. A great quantity of lava was moving about within the crater, which it almost filled to the brim. For many days, stones in great masses, and smoke were thrown out from a small crater in the interior. Two streams of lava at last issued and took a southerly direction, but, towards the end of October, the mountain became quiet.

1794 A. D. The thirty third eruption was

a memorable one and occurred on the 15th June. For several days, before it happened, the water disappeared from the wells in the neighbourhood of the mountain, and, in the evening of the 12th at 10 o 'clock, the shock of an earthquake, which undulated from east to west, was felt in the country around Naples. A second occurred at 2 and a third at 8 in the morning of the 13th. A very smart shock took place in the evening of the 15th and, immediately afterwards, the mountain burst open, about midway between the centre of the Piano delle Ginestre and the base of the cone, on the S. S. W. side, between Resina and Torre del Greco. Lava in great quantities instantly boiled out, with a noise like the discharge of heavy guns, and rolled down the mountain in copious waves, with great velocity, towards Resina, but suddenly turned and rushed upon Torre del Greco, overwhelming four fifths of the town and flowing 650 feet into the sea, having passed a distance of 6000 yards, in the short space of 8 hours. On the 19th a discharge of ashes, greater than had yet occurred, took place; a portion of the southern and western edge of the crater having fallen in during the preceding night, lowering the summit of the mountain, in that part, about a ninth of its whole height above the sea. Quantities of ashes

fell in Naples and the neighbourhood. On the 8th July, all appearance of eruption had ceased.

Breislak gives the following description of the interior of the crater on the 12th July. "To the eye the circumference appeared to be two miles, but, when measured, it proved to be only one mile and a quarter. The part towards the N. E. was the highest and the S. W. the lowest, so that the cone appeared truncated by a section inclining to that side; the form of the circumference was an ellipsis slightly eccentric, so that it might be considered almost as circular. The edge was not even, and did not decline uniformly, on the one side, from N. E. to S. W. nor rise equally, on the other, from S. W. to N. E. but formed alternate risings and hollows, the deepest of them lying on the south which was, therefore, the lowest part of the edge of the crater. The height of the cone was 740 feet, and the depth of the abyss of the crater 500. The sides of the crater had a rapid declivity, those of the northern or highest point being almost perpendicular. The bottom was a sort of plain or valley, running east and west, as the northern and southern sides of the crater narrowed it, by jutting corners or abutments."

1804 A. D. The thirty fourth eruption took place on the 12th of August, unaccompanied by

earthquakes. Smoke and lava were thrown out rom the crater, but without any noise. The latter, however, flowed from the summit, down towards the convent of the Camaldoli, and laid waste a great extent of country.

1805 A. D. The thirty fifth eruption was of short duration, but the interior crater continued to cast out ashes and smoke throughout the year. The lava issued from the S. E. summit and flowed towards Torre del Greco, threatening devastation, similar to that of 1794 but stopped within a short distance of the palace of the Cardinal, on the eastern side of the town.

1806 A. D. On the 31st of May, about seven in the evening, the thirty sixth eruption began and a great deal of fire was seen to issue from the mouth of the small crater, with dense smoke and a jet of large masses of melted matter. The lava then began to flow from the summit, following the course of former streams, towards the convent of the Camaldoli and Torre del Greco. Lapillo fell, in considerable quantities, at Ottajano, and ashes at Nola. On the 5th, 6th, and 7th of June, showers of ashes were thrown out towards the sea and after this the eruption ceased.

1810 A. D. The thirty seventh eruption occurred on the 11th of September when tremendous noises burst from the mountain, and lava

and ashes were shot from its summit. On the 12th the noises increased, as also the ejection of ashes. On the 13th the lava, from several openings near the summit, took a direction towards Bosco Tre Case, Ottajano, and Resina; but though this lasted for some days, very little injury was done to the cultivated lands.

1811 A. D. The thirty eighth eruption was announced, on the night of the 28th of December, by the shock of an earthquake, and on the 31st smoke rose from the cone, accompanied by the usual subterranean noises. On the 1st of Janry 1812 a pyramid of fire and a column of smoke shot up high in the air, and, at 4 in the morning, the lava flowed from the summit and divided itself into two streams. One soon stopped but the other continued to go on towards Torre del Greco, over the old lava, creating great alarm in the town. At noon it arrived within two miles of the palace of the Cardinal, having run 3 miles in 8 hours. On the 2d, 3rd and 4th new lava flowed out over that of the 1st but soon stopped, and this eruption terminated.

1813 A. D. On the evening of the 24th of December a slight earthquake occurred, and, the next day, the thirty ninth eruption commenced. The mountain threw out liquid lava, with a loud crackling sound, from the summit, and

from new openings near it. The ashes, lapillo and smoke ascended in the form of a pine, to an immense height, and the sun, seen through it, appeared like the moon behind flitting clouds, during a stormy night. Ashes and pumice fell, on the western side of the mountain, to a considerable distance, doing much injury to the young crops and to the shoots of the vines.

1817 A. D. The fortieth eruption began on the 22d December and terminated on the 26th of the same month. From 1813, small eruptions within the crater, extending sometimes to the outside, frequently occurred, and at length, formed two small cones on the bed of lava, within the great cone. Both of these fell in on the 22d and the lava burst from the summit, one current running towards Mauro, and another going on to the Pedementina: the current that took the direction of Mauro, broke out from a new opening half way up the north side of the cone. It ran down the slope and spread out into a sort of lake, at the eastern base of Somma, and thence descended into the woods of Ottajano, close to the palace of the Prince, and to within a few feet of the road which leads from Bosco Tre Case to the town of Ottajano; the other stream, issuing on the south side, also spread out on the Pedementina

and seemed to menace Torre del Greco; but, afterwards, it turned away more to the west, in a line with the palace of the Favorita, which stands at a short distance from Resina.

1820 A. D. The forty first eruption commenced in the middle of the year 1820, and lava flowed, slowly and in a small quantity, from the southern side of the great cone, a little above the Pedementina. Six mouths also opened in the north west side, and six cones were formed over them, in a direct line along the base of the great cone. From these lava was detruded towards the Fosso Vetrana: it passed over that of 1786, stopping in the ravine, at a few hundred yards below the ruins of the Chapel. During the months of October and November, lava appeared in the great crater, and red hot masses were projected from two small cones which had risen, the largest to a greater height than the Point of the Palo, and about 450 feet above the lava around it.

In January 1822 another small cone rose, on the Atrio del Cavallo near the former six, which threw out much scoria. On the 22^{d} Feb^{ry} a shock of an earthquake was felt near the mountain, and, soon after, a torrent of lava issued from the western side of the summit of the crater and flowed down, in two streams, on the Atrio del

Cavallo; they there united and ran towards the Punta della Croce on the Canteroni, thence made a turn and flowed towards Resina, over the lava of 1810. On the evening of the 23rd the column of smoke became magnificent and a quantity of scoria was thrown out from the small crater. This activity continued on the 24th and 26th the lava appearing on the south west summit of the crater and descending in six streams, all uniting on the Atrio del Cavallo. There were also showers of ashes and sand, the latter of which fell in Naples. On the 28th the lava stopped, after having crossed the road leading to the Hermitage.

1822 A. D. The forty second eruption occurred in the month of October. During the early part of the month, the immense quantity of scoria, thrown out by the small crater, raised the level of the internal plain very nearly to the edge of the great cone. On the evening of the 20th slight shocks of earthquakes were felt for some distance around the mountain, and thick, dark smoke rose from the great crater. On the 21st about 3. P. M. the lava suddenly boiled over the edge of the crater and ran down in two streams towards Resina and the Canteroni, but without passing over the Atrio. At midnight immense columns of smoke and fire rose from the crater, to the height of 2000 feet, while

sand as well as melted lava, were thrown far out on the exterior of Vesuvius. Showers of hot ashes and scoria which fell upon Bosco Tre Case and Ottajano, created great alarm and drove the people from their houses. The part of the crater opposite Torre del Greco continued in great activity during the morning, and new streams of lava flowed down the western and southern flanks of the cone. It was remarked that, when the lava ceased to flow for a short time, the projection of smoke and melted matter greatly encreased; but decreased and became more steady when the lava began to flow again. About midday a column of smoke rose to an enormous height, spreading out like an umbrella, over the mountain and its neighbourhood. At two o 'clock flashes of lightning were observed between the cone of Vesuvius and the convent of the Camaldoli, darting through the smoke and far along the sky above it. The lava flowed into the Fosso Grande and over the Piano delle Ginestre towards Resina, occupying more than half the space between the Fosso Bianco and Fosso Grande, and threatening to destroy Portici; but having approached to within a mile and a half of the church of Resina, it began to cool, and, soon after, it ceased to flow.

In the mean time the eastern side of the mountain became more active; lava flowed down in three currents towards Bosco Tre Case, and the Viuli; the third stream passed over that of 1810. During the night the scene was very extraordinary and beautiful, from the constant showers of melted lava thrown to an immense height, and the electric fire playing magnificently in the midst of the illuminated smoke. On the 23rd the ejection of melted matter continued, but with less force, and the streams on the eastern side had ceased to move, except the one that ran towards Mauro; this however continued flowing during the day and reached the Piscinella, near the palace of the Prince of Ottajano. On the 24th showers of sand were thrown out, darkening the air so much, that, in some places, people were obliged to light their lamps. The mountain was completely enveloped in dense clouds of vapour and smoke, and on the 27th torrents of water, washing down sand and ashes, inundated the country about Massa and S^{t}. Sebastiano, doing much injury and creating great terror among the inhabitants. The eruption then ceased, and the mountain resumed a state of tranquillity.

The summit of the crater was much changed by the eruption, having lost several hundred feet of its height, on the side towards Torre del

Greco, the northern side remaining in nearly its former state; so that the crater appeared as though cut obliquely from N. to S. The Pedementina, at the western and southern side of the cone, had been raised above two hundred feet by new lava, the material ejected from the cone, and ashes washed down by the rains.

The Canale dell'Arena, however on the northern side of the cone, was only, very slightly, raised by the scoria ejected from the crater and the ashes brought down, no lava having flowed in that direction.

The depth of the cavity of the crater was above eight hundred feet and its form was that of an irregular ellipsis, its greater axis lying from S. W. to N. E. The ridges of its edge sloping from its summit, inwardly towards each other, were very nearly united at the bottom, leaving only a small circular plain, covered with large masses of scoria.

1831 A. D. The forty third eruption. In March 1827 a small cone, formed on the plain at the bottom of the gulf towards the N. E. side, began to eject scoria and lava, throwing them up nearly one third of the height of the main crater. This small cone continued in a state of constant activity until the November following, when the ejection of scoria became occasional only. This

process went on during 1828 and 1829, sometimes with greater, at others with less force; and the level of the lava was raised on the S. W. side, to within 120, and on the S. E side to within 80 feet of the edge, being very nearly even, intersected, however, by two large crevices; but the ejection of matter from the cone was seldom so violent as to prevent persons from climbing to its summit.

In May 1830 the small cone was 150 feet above the level of the lava; it had a circular crater 30 feet deep, shaped like a bason, and at night, the molten scoria was often visible on its surface. A bright, blue flame sometimes suddenly appeared and spread out several feet at the bottom of the crater, lasting for a few seconds, during which the scoria and loose stones, occuping a space of 6 or 8 feet in circumference, rolled about, as if stirred round by some force from below; the flame was soon extinguished, and, at the same instant, the part that had been in motion, was shot up, high into the air, with a whizzing noise; most of it fell back to the spot whence it had been thrown, and the rest fell about on the sides of the small cone, or was carried by the wind on to the lava around it, sometimes even to the edge of the great crater. In November the ejection of scoria became vio-

lent, and streams of molten matter flowed from the base of the small cone, by which the inclination of the lava and the appearance of the inside of the crater were greatly altered; for on the S. W. side it was raised to within 50 feet, and on the S. E. side, to within 30 feet of the edge. The small cone was also much increased in height, and, though at first circular, had become oblong: the greater axis was N. and S. nearly at right angles with that of the main crater; on the south of it, five minor cones, had risen, covered with various shades of yellow, blue and green; all threw out scoria in a state of fusion, accompanied by a dense, yellowish white vapour, which rushed out with a noise like that of steam escaping from the safety pipe of a boiler. Although the surface of the lava had cooled and become black, yet, a few inches beneath, it was red hot, and a stick pushed into any crevice, took fire.

By the middle of January 1831 it had become cool and only three of the smaller cones remained in activity, they and the greater one continued occasionally, to eject melted matter during the summer, until the 14th August. About 10 o'clock in the morning of that day, a slight shock of an earthquake was felt in Resina and the neighbouring towns, and a large heavy

column of sable smoke rose from the crater. On the 15th a considerable emission of lava proceeded from the base of the small cone and ran towards the S.W. edge of the crater, in a winding course, while several smaller streams flowed about, in all directions, within the crater. On the 18th a wide river of lava, in a state of extraordinary liquidity, issued from the small cone, covering up inequalities and raising the whole level, on the western side, to within 15 feet of the edge; the small cone also was very active, throwing stones, of a large size, hundreds of feet into the air. Large crevices were formed in several directions across the lava, and in the night of the 22nd four new cones rose near the six already mentioned. Nearly the whole mass of lava, within the crater, seemed to be almost in a state of fusion; the number of brilliant spots where it was completely melted, making it appear like an illuminated city. The crater was now full on the western side, the lava threatening to flow over the path on the outside of the cone; but on the S. E. side it still wanted four feet of being even with the edge. The level of the lava was however, irregular, rising several feet higher on the western side of the small cones than on the other, and descending in terraces or tables, a few feet in thickness, towards the edge

of the crater. Between the eastern side of the cones and the edge of the crater it formed a regular concave surface, the deepest point being about 20 feet below the level of the edge. Two mouths had opened in the small oblong cone, both throwing out stones and smoke, sometimes white, sometimes loaded with sand and dust, but these ejections did not take place with regular alternations from each mouth, one sometimes threw out stones, while the other emitted only vapour; then they changed for a few moments, and then threw out stones together, and again, when the principal cone was ejecting scoria, one or two of the smaller cones nearest it, ceased to emit vapour with their ordinary force and peculiar noise, but recommenced, as soon as the jet from the greater cone had been effected.

This eruption of matter continued until the 18th of September, when the lava, which had two days before risen, in some parts, to a height of 15 feet above the the S. E. edge of the crater, began to flow over on that side, and having run down 16 feet, in a stream 14 feet wide, it cooled. The same day about two o 'clock another stream to the north of this one, reached the edge and flowed over.

The appearance of the interior of the crater was slightly changed, the fissures had been wi-

dened and formed a curve from N. N. E. to W. N. W. round the outside of the small craters, one of which, excepting only its northern side, had fallen to pieces. Its remains exhibited a front of perfect columnar basaltic lava, 20 feet high; the part which had fallen was a heap of cubic masses of lava and scoria tinged with beautiful shades of green. The whole space enclosed by these fissures was one ground of bright yellow, with occasional patches and streaks of red.

On the 20th it was observed that the lava had flowed two hundred feet down the S. E. exterior of the great cone, and, continuing to run with rapidity, it took the direction of Bosco Reale. On the 27th it ceased to flow in the same course, but divided on the Pedementina, and, winding round the base of the cone towards the west, swept onwards to the Vocoli or craters of the eruption of 1760, over a stream emitted in 1822, but it stopped within half a mile of them on the evening of the 30th. The stream then resumed its original direction, and during the early part of October flowed steadily and slowly onward till it reached the edge of the Pedementina. On the evening of the 20th, the eruption attained its climax, the column of fire, which rose from the crater, was immense and very splendid; and the lava bursting out from the north side of

a shell, or the discharge from a large mortar when fired.

Lava had also issued from the N. E. side of the small cone, and had wound slowly round its base, towards the spot, at the western edge of the crater, where the stream flowed out in October. Five small fumaroli, close together, in a line with each other and rising three feet above the middle of this stream, shot out pieces of lava, of the size of small cannon balls, about five feet into the air, with a report like that of a pistol.

On Christmas day, between 10 and 11 A. M. the lava from the S. E. side of the cone, arrived at the edge of the crater, where the great stone stood, and ran rapidly down over the path by which, previously, it was customary to ascend. At 2 o' clock it was half way down the cone, and as observed at night from Naples, produced a beautiful effect. The vapour from the lava and the smoke from the cone, becoming heavy, sank down upon and enveloped the burning torrent, hiding it from view; then, suddenly blown away, it would disclose the fiery streak, which seemed, from the darkness that reigned around it, to shoot up into the air, as if it were some enormous rocket.

Half way down, the mass turned towards Resina, leaving the path, and running with great rapidity, to the foot of the cone, where it arrived before midnight. On the 26th December at noon, it had flowed twelve hundred feet from the base of the cone, making altogether a distance of 3600 feet in twenty six hours. At that time it was advancing at the rate of ten feet an hour, in three streams, having a front of 280 feet, over the old lavas of 1767, 1775, 1810 and 1822. At 2 o 'clock the stream from the northern side, reached the edge of the crater, flowed over the lava of October down a third of the cone and there joined the other current.

During the night of the 27th, it rained heavily at Naples, and next morning, the upper part of Vesuvius was seen to be covered with snow, the hot stream, being marked out by the black line, which extended from the top to the bottom of the cone.

In the mean time the small cone became comparatively tranquil, seldom throwing out any lava, though it still emitted smoke. On the first day of the year, the explosions from it recommenced with great violence and much scoria was ejected. The lava continued to flow slowly, at the upper end, and did not entirely stop till the 12th though the lower extremity ceased to advance on the 10th of January; the stream being

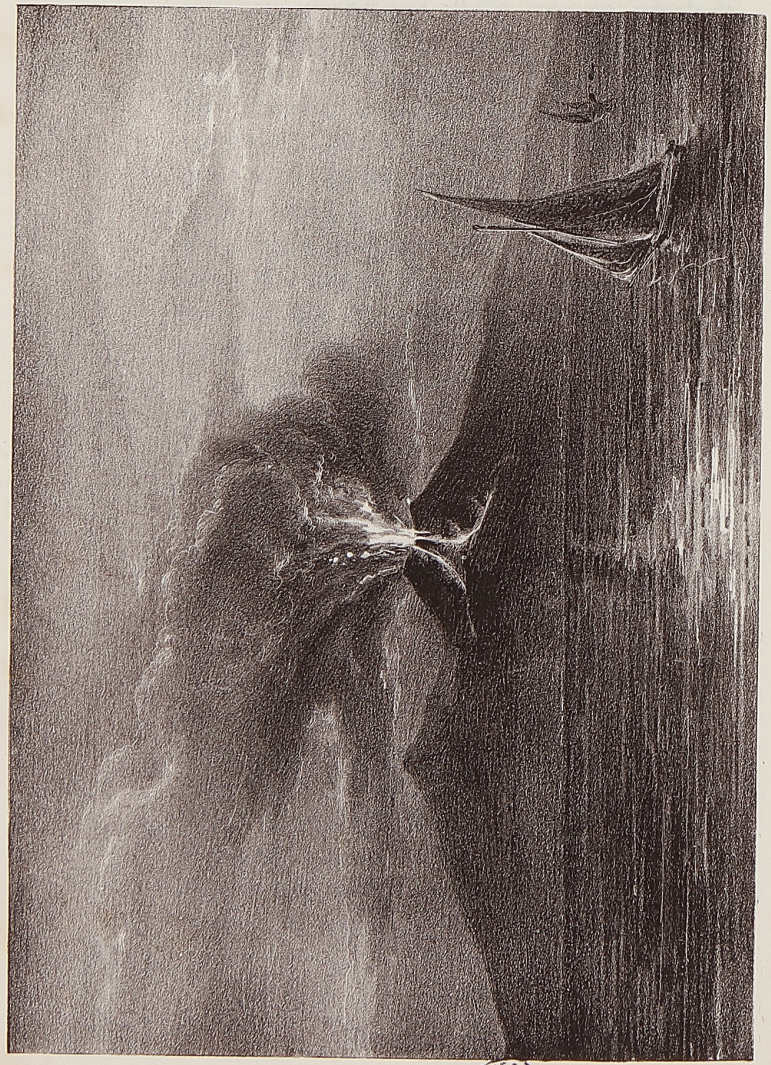
then 7500 feet long, and 280 feet wide. The lava was still warm on the 28th; a thermometer placed on the slope of the new bed rose to 106 Fah: and scoria taken a few inches from below the surface was too hot to be held in the hand. On the same morning, that the lower part of the stream stopped, the cone became perfectly quiet, and remained so till the 18th of February, when numerous, and violent shocks accompanied by a noise like the roaring of the sea during a storm, were felt on the mountain and they were renewed several times on the following night. The same evening, two circular apertures, forty feet in circumference and as many deep, opened within the small cone nearly in the same place where those of last December existed; and from them was thrown up a column of white smoke, red hot scoria, and ashes; these latter, carried by the wind, spread over the flank of the old cone in the direction of the Piano delle Ginestre. The smoke strongly charged with sulphur and marine salt, beating against the southern wall of the crater, deposited them, covering the whole with a cake of a yellow and a white colour intermixed. The vapour which rose from all parts of the crater, was so strongly charged with acids that it was impossible to breathe in it for more than a few seconds.

A stream of lava broke out on the 20th from that part of the crater, on which the small cones rose in August last, and extending over the southern portion of the plain, covered the old lava, filling up the inequalities and making a perfectly level surface. Near the point whence the lava issued, twenty feet from the remains of the small cones, liquid lava bubbled up like bitumen in circular waves, in the same manner as in some ornamental fountains, the water, playing from a centre, curls and rolls down over fanciful masonry: when they had cooled and become hard, they resembled a coil of the thickest cable.

An earthquake, having an oscillation from south to north, and accompanied by a crackling sound, which resembled the rumbling of carriages over a rough, uneven pavement, was felt at Pozzuoli and the surrounding district, at one o'clock in the afternoon of the 21st and though slight at that town, was considerable in other places, particularly at Monte St. Angelo, throwing down some walls, and doing much injury to several cottages. About the same time, the stream of lava received a great augmentation and stimulus, so that it passed out from the great crater, at the spot where the other lava had last issued, and ran down its southern edge, arriving before morning, at the base of the cone. Owing to the

steepness of that part of the cone on which it flowed, little scoria formed upon its surface, so that it had a beautiful effect, the bright streak of fire, sparkling in the darkness like a meteor; and sometimes, when a fresh and sudden impulse was given to the current, a billow more luminous and brilliant than the rest of the fiery mass and darting forward in long rapid flights, slid or shot down the stream. The small cone continued to eject red hot matter and a quantity of thick smoke, which hanging over the mountain in large round volumes heaped one above the other, looked like an immense cauliflower during the day, and at night, illuminated by reflection from the burning lava, presented a singular appearance, rich in many changes of form and varieties of colour.

On the 25th a stream separating within the the crater from the one which had been flowing for some days, advanced to the edge in two branches and ran over; one of these, stopped after proceeding half way down the cone, but the other moved rapidly towards the base in the direction of the Punta delle Crocelle on the Canteroni. During the 26th and 27th the projection of matter from the small cone and the emission of lava continued without cessation, and on the evening of the latter day, the stream which



Vesuvius on the night of the 27th of Febry 1832.

ran towards the Canteroni, rolled down the cone with great rapidity covering the stones at which it was customary to leave the mules; its width and height making it a magnificent object, which, together with the original stream flowing in the contrary direction, produced a very splendid effect. This new stream continued to flow for a few days gradually decreasing in force, and on the 22d it entirely stopped. The stream which came over the edge on the 21st ran slowly down till the 5th when it ceased to flow; on the 7th however, another issued to the north of the rest, but only flowed two days.

On the evening of Thursday the 8th at 14 minutes past seven o'clock, an earthquake was felt at Naples, and a second shock succeeded at two o'clock the following morning; both had an oscillation proceeding from south to north, but were slight, unattended by any subterranean sounds, and did no damage in the city, or in its environs. The weather had heen stormy throughout the day and towards night the wind blew with great violence from the south, often breaking into sudden and tremendous gusts. The shocks were not confined to the bay of Naples, they extended through part of Calabria, and the beautiful town of Catanzaro its capital, built on a hill eight miles distant from the sea, was laid in ruins

by the first convulsion, nearly at the same hour at which its shock was felt at Naples, but the particulars of this catastrophe have not yet been received. It is not the first time that this city has suffered from similar visitations; in 1626 it was nearly destroyed, and in the great earthquake of 1783, a considerable part was thrown down and otherwise injured.

The Volcano however remained in a tranquil state, but a constant emission of smoke and of melted scoria has continued to take place. The mass of vapour ejected, sometimes settles like mist on the top of the cone, sometimes rises aloft like a pyramid, or in a funnel-shaped form, and often, blown away by the strong northerly breezes prevailing at this season of the year, stretches across the sky in thin straggling layers, or in a dark line, which lengthens out and is confounded with the horizon.

INSCRIPTION AT PORTICI *

" Posterity, posterity, this is your concern
one day enlightens the next, that next
improves the third.
Be attentive.
Twenty times, since the creation of the sun
has *Vesuvius* blaz'd never without a horrid
destruction of those, that hesitated to fly.
This is a warning, that it may never
seize you unappriz'd.
The womb of this mountain is pregnant with
bitumen, alum, iron, gold, silver, nitre
and fountains of water.
Sooner, or later it kindles, and when the sea
rushes in, will give it's birth vent.
But before it's labours come on it is shaken,
and shakes the earth round it: smokes, gleams,
throws up bickering flames, shakes the air,
roars horridly, bellows, thunders, drives the
inhabitants from its quarters.
Retire whilst you may:
Now, now, it's throws come on, it bursts out,
it flings up lakes mixt with fire,
down, down it rushes and precipitate
Prevents your tardy flight, and stamps your fate;
if it once surprizes you, all is over.
If you are wise, hear this speaking stone.
Neglect your domestic concerns, neglect your
goods, and chattels, there is no delaying.
Fly. "

* In latin, translated by the Earl of Orrery. 1751.

HEIGHT OF VESUVIUS.

1749 A. D. .	3415 English feet	536 toises	Abbè Nollet
1773.....	3892.....	609.....	Saussure.
1794.....	3872.....	606.....	Poli.
.....	3917 (1).....	613.....	Breislak
1805.....	3872.....	606.....	Gay Lussac.
1810.....	4076 (2).....	638.....	Brioscki.
1816.....	3974 (3).....	622.....	Visconti.
	1822 Nov.		
Hermitage.....	1853.....	290.....	Monticelli.
Atrio del Cavallo....	2453 (4).....	384.....	—
Edge towards Resina..	3415.....	536.....	—
— Torre del Greco..	3533.....	553.....	—
— — dell'Annunziata.	3559.....	557.....	—
— Bosco Tre Case...	3393.....	531.....	—
— Ottajano.	3649.....	571.....	—
Palo.....	3885.....	608.....	—
Palo in Decr 1822...	3853.....	603.....	—
Edge towards Bosco Reale.....	3373.....	528.....	—
The Punta del Vitello, the highest point of the Somma.....	3688 (5).....		—

1 After the eruption.

2 The Palo.

3 Trigonometrically.

4 In November.

5 The Monte Somma beginning from the Canteroni near the Hermitage and ending at the lowest point above Mauro, forms a semicircle, of which the radius is a mile; and the centre of its circle falls in the centre of the present crater, the diameter of which is one half of a mile — Visconti.

APPENDIX.

VESUVIUS.

Since the preceding sketches of Vesuvius were printed two eruptions have made a material change, not only within the great crater, but also on the exterior of the cone at that part where it was usual to ascend.

In the first eruption, which commenced on Christmas Day, the lava flowing over the great stone at the upper end of the path, descended from this point and spread into several long and narrow ridges of scoria, each having a hollow in the middle that served as a channel through which the molten lava ran, and when it had ceased to flow, they resembled the dried up beds of mountain rivulets. These ridges cover the old path as far as half way down the cone and there uniting into one large mass or principal stream, turn off to the right and continue down the slope to the Atrio. This ledge, from the accumulation and continual piling up of the scoria, forms a lofty bank, having less

inclination than the slope of the cone, and looks like an embankment made to carry a canal or road over a valley. Thus far there were three courses for the lava, but on arriving at the Atrio, they divided into several others, forming a wide flat mound, and proceeded towards Resina, in a line parallel with the Canteroni. In the annexed sketch I have attempted to give an idea of the appearance which the front of the bank has, while pushed forward by the fluid material within it. Near the bottom, masses of soft lava are twisted and squeezed out from under the incumbent matter like dough from the kneading-trough; higher up, lumps of scoria, red-hot, but no longer soft, detach themselves and roll down; smaller pieces crumbling away from the top pour down over the rest, so that the front is not perpendicular, but has a slight inclination.

A path has been made along the northern edge of the new lava, but it is much more rough, steep and difficult than the old one. On reaching the top, three hundred feet to the left of the point, where the ascent formerly terminated, the recent matter is found piled up in large slabs and irregular pieces which were raised higher than the edge of the crater; indeed, the whole of it in this part of the interior, rose with a considerable inclination towards the small cone and towards the insulated platform, which was nearly enveloped by the surrounding lava. The minor craters or fumaroli had become nearly confounded with the rest, and their remains, as also the whole of the platform, were covered with a coating of sulphur.

The base of the small cone had greatly increased

The front of the stream of Lava on the 26.th of Dec.r 1831

The Crater of Vesuvius on the 25th Feb. 1832

in circumference; within it were two craters, the first a large one forming a segment of a circle, the curve sloping towards the bottom, which was eighty feet deep, and only a few feet in width; the diameter of this segment was a perpendicular line of compact lava, of which the whole western side of the cone was formed. A second orifice was a smaller but similar segment and was only thirty feet deep. Three cracks extended across a narrow level space between these mouths and the eastern side which was much lower than its opposite; it was round at the top, and sloped with a rapid declivity to the plain of lava. From these cracks escaped an almost invisible vapour highly charged with acid, and at their edges various salts were sublimed in efflorescences of beautiful colours. On the north the exterior was excessively steep, but on the south, it sloped gradually down to the remains of the platform, which still presented an upright front towards the East and South, but the fissure was nearly filled with the scoria ejected from the cone. The part of the great crater between this and its eastern edge, was the same as it was in October, but so great a quantity of marine salt had evaporated through its crevices, that some people from Torre del Greco, had collected several sacks of it.

Within the crater, at a short distance from the point where the lava passed over its edge, several large oblong slabs of lava were joined together in a convex form, or rather, their sides, inclining towards each other, supported a central and horizontal table; the fourth side was split in two, and through the crack, the stream rushed, as if from under a ruined arch.

The lava, which ran from the western side of the cone, at the end of last month, has also made an alteration in the appearance of its exterior. The first stream which issued on the 21st, after having flowed in a straight line half way down the cone, at a few yards to the south of the streams of last January, united with them, connecting the extremities of the curve which they formed. The stream which came over on the 25th to the north of the others, flowed down towards the spot where it was customary to commence the ascent on foot, and destroyed the lower part of the path, hitherto untouched by any of the streams. Of the two which ran down on the 27th one flowed in the channel and took the course of the last, completely covered the path, buried the large blocks at the place where the mules used to be left, and then passed two hundred feet lower down: the second, to the north of the other, advanced about the same distance from the base of the cone toward the Fosso Vetrana, and then divided into two branches, one of which ran towards the Punta della Crocella, the other towards the Somma, both extending more than a hundred and fifty feet from the point of their separation, and forming a semicircular front of brown scoria, varying from 10 to 15 feet in height, round the northern extremity of which the present path for the mules winds, and then follows the ridge formed by the stream, to the base of the cone. The new footpath commences about half way between the old one and the cones of 1820, leading, with very little deviation, up to the summit; it is consequenaly steep and very fatiguing, particularly at one place where it passes for some distance through deep sand. The in-

A grotto in the Lava.

terior of the crater towards this side again presents a different aspect, the plain is much raised, uneven, and covered with hillocks of lava, piled against each other in various angles, with mishapen lumps of scoria heaped up between them, and the tabular mass is almost hidden by different currents which flowed over and around it. Only one stream remained running on the 7th March rising up at the point, where the new path arrives at the edge, and the compact material, in rolling away, was drawn out into a stringy form, making a noise like that of wax when melting. The height of the small cone was diminished on its western side but had increased on all the others from the scoria ejected, and its circumference was, from the same cause greatly enlarged: snow lay thick on its exterior, while clouds of smoke and heavy showers of red hot matter were thrown from its interior, and it may be supposed that so strange a contrast gave it an interesting as well as a most remarkable appearance.

The lava on the southern side of the crater, though also raised, still remains level, and the platform there presents its perpendicular front of basaltic lava, though, in some parts, its disrupted masses slope on to the plain of lava; the crevices around it are nearly filled up with the blocks and the whole is covered by a deposition of sulphur, of a brilliant yellow colour.

Near the place where the lava rose like a fountain, I discovered a beautiful and very singular, arched grotto, formed by a gigantic bubble of lava. The arch was composed of a thin layer or cake of lava, from eight inches to a foot in thickness, and the open part or mouth had not fallen in, but had been blown

outwards; the edges of the rest, which remained standing, were covered with white, green, and light blue encrustations. The width of the whole was twenty four feet; that of the opening, fourteen, the depth from the margin to the level within, five, the height of the arch from the internal level, fifteen, and the length inwards twenty five feet.

The interior was coated with pure salt in minute crystals, thickly strewn with patches of bright green, and stalactites of salt of the same colour, hung from various parts. The bottom of the interior was level but curled and twisted into numberless ripples, apparently caused by two streams which flowed through it, one from the centre and the other from the right side, both of which had united and made their exit through the left; the whole was of a colour, between a light red and ochre which contrasted finely with the bright tints of the roof. The heat within it was so intense, as to preclude the possibility of descending into it, but there was no vapour to cloud its beauties, no noxious air to drive one from its mouth, whence this rare object could be examined and its extraordinary features admired, without danger or annoyance.

THE END.

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Napoli 21 Marzo 1832.

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PER

LA PUBBLICA ISTRUZIONE.

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